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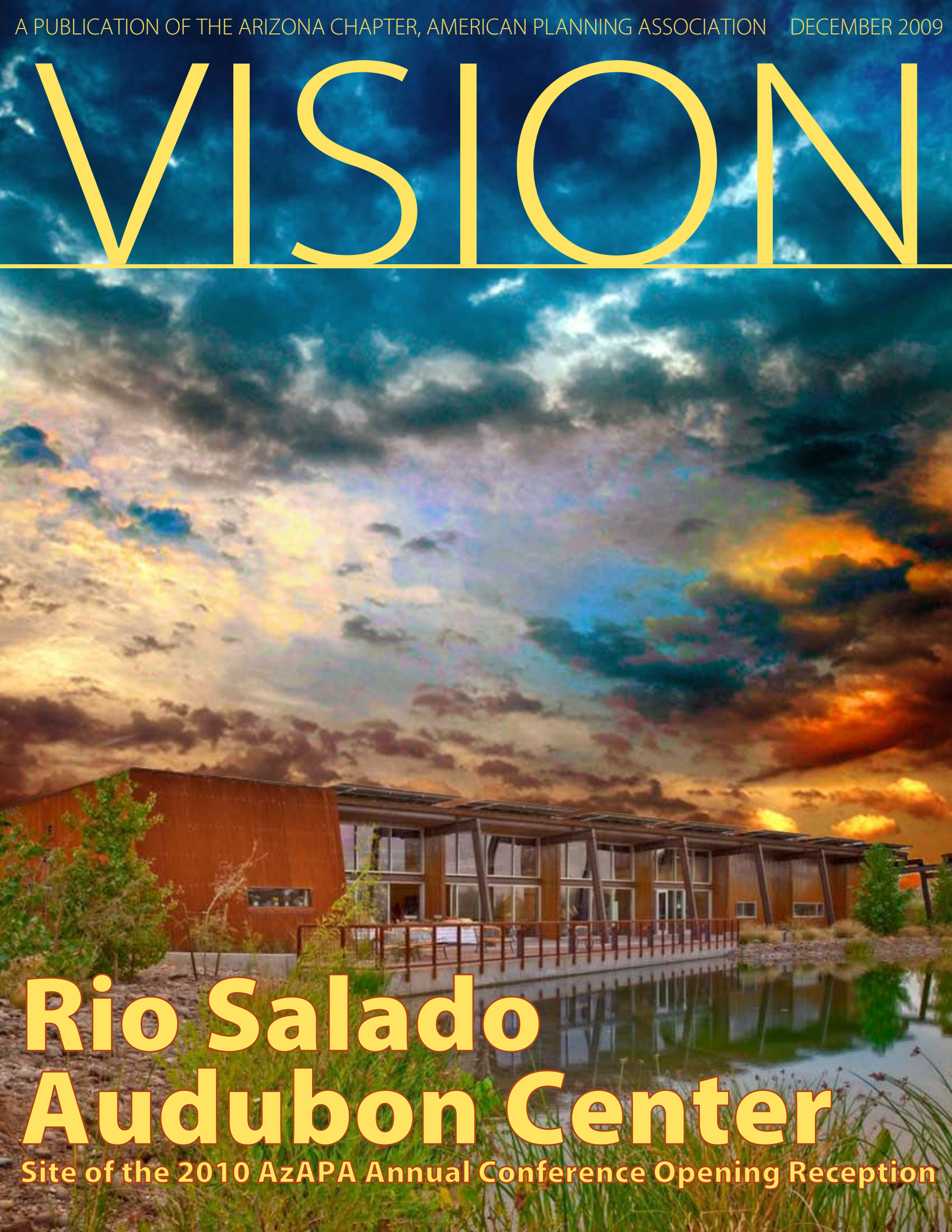

Rio Salado Audubon Center

Site of the 2010 AzAPA Annual Conference Opening Reception

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VISION Cover Image: The 2010 AzAPA Annual State Conference will be held in Downtown Phoenix November 3rd-5th. The Opening Reception will be held at the new Nina Mason Pulliam Rio Salado Audubon Center, located in the Rio Salado Restoration Project south of Downtown. The Project is a restoration of the Rio Salado (Salt River) to its natural condition, with the reintroduction of the riparian habitat which existed prior to the development of the system of dams that diverted most of the water from the river.

The 8,000 square foot Audubon Center is the first Audubon education center in Arizona and was built at a cost of $7,000,000. Its development was a partnership between the Arizona Audubon Society, the City of Phoenix and numerous other individuals and organizations.

The Opening Reception at the Audubon Center is but one of many exciting activities scheduled for the 2010 Conference. Please mark your calendars for November 3-5 and join your fellow planners in Downtown Phoenix.

APA AZ OFFICERS & DIRECTORS

COMMUNITY-BASED CONSERVATION IN TUCSON'S RINCON HEIGHTS NEIGHBORHOOD

By: Joe Silins, Watershed Management Group

The Watershed Management Group and the Rincon Heights Neighborhood Association are the joint recipients of the Arizona Planning Association's first annual Making Arizona Competitive for the 21st Century (MAC21) Award, which recognizes their innovative approach to community development and green infrastructure in the Rincon Heights neighborhood in central Tucson. Details on their collaboration are available in the following article, and on their website at http://watershedmg.net/.

Introduction

Walking or driving the streets on the eastern side of the Rincon Heights neighborhood two years ago, the average pedestrian or driver wouldn't notice a stark difference between Rincon Heights and several other neighborhoods surrounding the University of Arizona. Like those other neighborhoods, many of the homes were built before 1950 with a high percentage of homes rented to students, and many of the streets have parking restrictions due to students' parking needs. Rincon Heights also shares some of the challenges that those neighborhoods face, including cut-through traffic that often speeds through neighborhood streets, and the temporary flooding of neighborhood streets due to intense seasonal rainstorms and a lack of adequate stormwater infrastructure.

However, walking or driving down those same streets today, the average pedestrian or driver will notice a series of traffic calming and landscaping features that address those challenges and make Rincon Heights a model for the successful integration of green infrastructure into neighborhood streets. Recessed rainwater harvesting basins have been retrofitted into public rights-of-way to capture rainwater runoffcoming from individual properties and neighborhood streets, while traffic calming features designed to capture rainwater have the added function of slowing drivers in the neighborhood's interior.

A typical Rincon Heights right-of-way, including some two-year-old plantings from previous neighborhood efforts. November 2008.

The same right-of-way after a curb cut and bioretention basin have been installed, March 2009.

While these features may be the most visible product of a three year collaboration between the nonprofit Watershed Management Group (WMG) and the Rincon Heights Neighborhood Association (RHNA), from a community development perspective the most valuable benefits of this initiative are those that aren't as visible during a brief visit through the neighborhood; those that come in the form of the relationships developed and the environmental education gained over the course of this partnership spanning the last three years.

The Beginning of a Beautiful Partnership

The collaboration between WMG and RHNA began with one impromptu workshop aimed at improving neighborhood tree planting efforts, and has since grown into a sweeping initiative that has engaged the local community through a suite of projects promoting environmental conservation, neighborhood beautification and citizen engagement. Watershed Management Group (WMG) is a Tucson-based nonprofit that has several community-based water conservation programs and the Rincon Heights Neighborhood Association (RHNA) is an established neighborhood association that has confronted many issues associated with its proximity to the University of Arizona.

Rincon Heights neighbors first contacted WMG in 2007 to provide technical assistance with neighborhood tree plantings. Neighbors had observed that trees they were planting were not thriving, and sought WMG's help in pairing their plantings with water harvesting strategies. WMG's Executive Director held a spur-of-the-moment workshop with the neighbors to teach them techniques of building water harvesting structures like earthen basins and swales. This led to a series of planting and rainwater harvesting workshops that WMG and RHNA did together over 2007 and 2008.

In 2008, Watershed Management Group obtained grant funds from the Arizona Department of Environmental Quality (ADEQ) to conduct water quality improvement and education in the neighborhood. WMG brought the technical resources necessary to improve the quality of neighborhood runoff, while RHNA brought strong leadership, continued resident participation, and a deep interest in learning rainwater harvesting techniques to the table.

This two-year project involved a series of educational, hands-on public workshops to install stormwater Best Management Practices (BMPs) like bio-retention basins, berms, curb cuts and infiltration trenches on ten neighborhood blocks to improve local water quality. Bio-retention basins and infiltration trenches are depressions in the ground that are placed along neighborhood roads and sidewalks to capture rainwater runoff. Earthen berms slow and direct rainwater runoff from adjacent properties, while stormwater from the road enters basins through gaps cut out of curbs.

After demonstrating the effectiveness of these initial BMPs and the dedication of workshop volunteers, WMG and neighborhood leaders convinced the University of Arizona to install similar features at seven of its parking lots and facilities in the neighborhood. Subsequently, some 80 traffic mitigation structures incorporating rainwater harvesting features were implemented along two main neighborhood streets with the support of Pima County bond funds, and volunteer labor to plant the structures

Thanks to advocacy from WMG and RHNA, the University of Arizona created stormwater BMPs--like this swale that catches parking lot runoff--at several of their properties in the neighborhood.

Additional projects undertaken during this initiative include a workshop series to train community leaders from 13 other Tucson neighborhoods in BMP implementation, a cleanup of a local wash, and the installation of a natural "pocket park" within the neighborhood to provide outdoor community space within the neighborhood. This veritable laundry list of projects is a testament to the success of this collaboration and to the sustained engagement of this community.

Lessons Learned from Rincon Heights

Over the course of this collaboration, several factors contributed to the success of this initiative. Watershed Management Group and Rincon Heights Neighborhood

Association are established organizations experienced in conservation and community development, and their collective knowledge informed the approaches used during this initiative. After reflecting upon the successes and missteps experienced over the course of this collaboration, the following Best Practices (not to be confused with Best Management Practices (BMPs)) were distilled.

Grassroots Approach to Community Development

Contrary to the provider/client dynamic employed by some organizations working in community development with a unilateral decision-making process, WMG employed a neighborhood-centered approach to determine the extent and form of projects to be completed in Rincon Heights. While WMG staff provided technical guidance, along with workshop leadership and implementation, neighborhood leaders were involved in the design and implementation of this initiative from its inception. Furthermore, the impetus, authority, and responsibility for the improvements lie with neighborhood residents themselves, who are prepared to maintain them.

A Rincon Heights neighbor instructs volunteers on how to use native plants in a stormwater-harvesting chicane.

Neighborhood-Scale Green Infrastructure

In addition to this project's unique community-based approach, this project pioneers the installation of "green infrastructure" to address and integrate stormwater management, water conservation, livability and beautification goals. The installed stormwater BMPs remove pollutants, reduce flooding and provide moisture for native plantings without creating a long-term need for additional irrigation. The plantings in turn shade neighborhood streets and sidewalks, mitigate the urban heat island effect, calm traffic by reducing perceived (and actual, in the case of vegetated chicanes) street width, attract native wildlife, and beautify the streetscape.

A traffic-calming chicane, installed by the City of Tucson and planted by Rincon Heights volunteers, filters and infiltrates stormwater during a 2009 summer storm.

Make Green Tools and Technologies Accessible to All

WMG staff and RHNA leaders purposefully engaged people from a variety of different backgrounds over the course of this initiative. All WMG workshops conducted in Rincon Heights have been free, and have been open to all members of the public (with the exception of the Neighborhood Leaders workshops). The number of participants is limited for each workshop to ensure that attendees have the tools and supervision necessary to make the workshop a success. Over the course of this initiative, over 200 workshop participants were trained in the hands-on implementation of green infrastructure BMPs.

These participants represented a variety of age groups and socioeconomic backgrounds, and included neighborhood homeowners, renters, individuals who use Rincon Heights for parking only, and participants from outside of Rincon Heights. This variety among workshop participants is a testament to the broad-based interest in sustainability and conservation in Tucson. To address this broad-based demand for green technologies and techniques, WMG's programs are structured to make them as affordable as possible to all interested individuals, and also provide grant assistance to low-income families to help them afford green improvements.

Beyond satisfying individuals' interests, diversity among participants helps engage new partners. It was the involvement of university students in this project, along with the neighborhood's proximity to the University, which prompted the University of Arizona to get involved in this initiative.

Volunteers install BMPs and a strawbale wall at a pocket park in Rincon Heights

The Multiple Benefits of Community-Based Conservation – Environmental Education, the Generation of Social Capital, and the Increased Utility of Community Investment

As mentioned in the introduction to this article, the greatest benefits gained through this partnership are not the environmental benefits yielded by the green infrastructure BMPs. Rather, they are the less tangible benefits yielded by sustained community participation in this environmental conservation initiative. Along with learning how to construct earthen structures, workshop participants were instructed in landscaping design and plant selection techniques, which they can use to implement BMPs at their own homes. Additionally, the community leaders that came from outside to participate in the Neighborhood Leaders training program have been able to apply these new skills to design and implement projects in their own neighborhoods that integrate BMP principles.

WMG staff teach workshop participants how to prevent erosion of dirt driveways while creating low-water use rain gardens

The hands-on, participatory nature of the BMP workshops also helped reduce the need for investment from sources outside of Rincon Heights. While grant funds were used to pay for WMG staff time and for workshop materials, workshop participants leveraged their own "sweat equity" to construct the different BMP features and the pocket park. During this time of shrinking budgets, the low cost of implementation for these projects certainly extended the life of the initial grant.

Beyond the technical skills and economic benefits gained through the BMP workshops, the relationships developed between workshop participants will long outlast the two-year lifespan of the initial BMP grant. These interpersonal bonds have enhanced the sense of community pride and connection within the neighborhood, and these new relationships will help this community address future challenges.

What's Next for Rincon Heights?

In Rincon Heights, the next big challenge will be maintaining the BMPs that have been installed in dozens of locations across the neighborhood over the past two years. WMG and RHNA are working to mobilize and organize support for this effort not only from inside the neighborhood, but from the greater community. WMG is exploring developing a community-based volunteer "Green Streets Stewardship Corps" that could help provide maintenance to these sites across the city. Since initiating the project, WMG has worked with several other Tucson neighborhoods seeking to follow in Rincon Heights' steps, and these neighborhoods have used Rincon Heights as a model for developing green infrastructure practices. With a grant from the Arizona State Forestry Division, WMG is now working with the City of Tucson to develop official standards for green street/stormwater BMP practices that can be used in neighborhoods citywide.

Watershed Management Group: Pioneering Community-Based Conservation

The community-centric and innovative approach used for this initiative is typical of WMG's programs. Founded in 2003 to help individuals and communities manage their natural resources more sustainably, Watershed Management Group is convinced that communities themselves are the key to ensuring the long-term quality of life on a local and global scale.

The following programs show WMG's commitment and willingness to work together with communities to develop sustainable solutions to resource management challenges:

Green Streets

Green Neighborhoods Program

WMG is working with several neighborhoods to build community and green neighborhoods through the use of green infrastructure practices, and is working to build

educational programs that can empower neighborhood leaders and advocates to spread the model throughout Tucson and the southwestern US.

Waterharvesting Co-op Program

This program employs the "barn-raising" model of community action, where members share their skills and labor to convert their homes into models of beauty and sustainability. This enables homeowners to install rainwater harvesting systems, greywater systems, native vegetation, and edible gardens, after building up "sweat equity" during workshops at other members' homes.

Schoolyard Gardens Program

With an integrated approach incorporating hands-on educational activities and the creation of water harvesting gardens at multiples schools, this program provides K-12 students with an applied understanding of their environment with a focus on water resources and native plants.

WMG's International Programs

Currently working in India and Burkina Faso, these programs apply WMG's unique approach to program development by helping communities in need solve their resource challenges through grassroots action, collaborative partnerships, and community empowerment.

UA President Robert Shelton visits with WMG staff and Rincon Heights neighbors at WMG's pocket park installation event for Earth Day

For additional information on the Watershed Management Group and its programs, visit http://watershedmg.net/.

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Joe Silins is a member of the Board of Directors of the Watershed Management Group headquartered in Tucson.

2009 AWARDS

DEMONSTRATE DIVERSE ACTIVITIES STATEWIDE

The 2009 Awards are evidence that, despite the most daunting of situations and planning environments, Planners in Arizona continue to produce high quality and extraordinary plans, processes and programs. This year, two individuals and ten projects were awarded. The program included a new award; 21st Century Infrastructure Award and included minor changes to other award categories. The changes were made to reflect the upcoming General Plan update cycle and to reflect award applications in the areas of historic planning, regional and multi-jurisdictional planning and private master plans.

This year's **Distinguished Leadership Award** was presented to Betty Drake. The Distinguished Leadership Award is provided to a planner who has shown consistent leadership with regards to contributing to the Arizona planning profession, outstanding service, commitment, effectiveness, leadership, innovation, significance and application of the goals and responsibilities of the profession. Betty has served on the Scottsdale City Council, was a pioneer with regards to Bicycle and Pedestrian Planning in the State, and in fact the nation.

The **Historic Planning Pioneer Award** was presented to Peggy Fiandaca. The Historic Planning Pioneer award recognizes those individuals in Arizona who have been practicing in the state for more than 25 years and have significantly impacted planning practice, education, theory, citizen participation or organization on a statewide or regional scale with long-term beneficial results. Peggy's contribution to our state and the profession is remarkable, and she has been on the leading edge of many significant planning efforts.

Glendale Centerline Plan prepared by the Introductory Urban Planning Studio at ASU received the **Student Planning Project Award**. The entire committee unanimously agreed that this project was extraordinarily well-thought and well-presented. The quality of the text and graphics were outstanding. The planning concepts, framed around distinct development possibilities, were clearly articulated. We look forward to working with, and likely for, these students in the future!

The Yuma Bicycle Facilities Master Plan won the **open category**. The Bicycle Facilities Master Plan is a written guide for the future placement of bike lanes, bike paths, and bike routes through the city. The plan directs city departments how and when to implement each segment of the plan through the Capital Improvement Program. In awarding this plan, the committee felt it was thorough, detailed and well done.

An **Honorable Mention** was awarded to the United Way Transforming Retirement with Extended Life Options Planning Guide. While not a physical plan, the Committee felt it was a unique and comprehensive effort led by a planner and an organization that is not a typical physical planning organization. Recognizing that we are living longer, this Guide addresses a range of retirement planning options, including health, choosing a place to live, continuing education, mobility, finances and more.

The award for **General or Comprehensive Plan for Jurisdictions under 50,000** is the City of Casa Grande General Plan. This plan rethought typical planning tenets in a new and forward thinking way, and included an extensive public engagement process. It includes forward thinking concepts to conserve the town's downtown, rural and agricultural areas. It provides options for accommodating new and redevelopment along the City's main commercial streets so they become pedestrian and transit friendly. The plan included an extensive public engagement process that reached out to youth, the business community and the community at large.

The City of Avondale City Center Specific Plan was recognized as the **Best Master Plan**. This well written and well-presented document includes many strong commitments to creating a pedestrian and transit friendly City Center. It includes clear graphics and guidance for development and well as for city decision makers. The plan brought together many property owners around a concept of a walkable and transit friendly town center. The plan includes a model code to guide development of mixed use districts as well as identifies and provides guidance for parks, green spaces and streetscapes.

The **Best Project Study** was awarded to the Town of Florence Redevelopment Plan. This plan includes a workable and logical approach to redevelopment in Florence. It includes quality graphics and clear goals that recognize the historic value of the downtown as well as the need for new development to help revitalize the downtown. The implementation plan was clear and concise. This plan also included an extensive public engagement process documented in the Appendix.

The **Best Ordinance/Regulation/Legislation/Adopted Policy** the Committee selected the Phoenix Wireless Communications Facilities Ordinance. This extensive amendment to the text of the city's existing ordinance is recognized because it is a very transferable solution to a challenge faced by many jurisdictions, it brought together a wide variety of stakeholders around a widely discussed issue and it will make a tremendous impact with regards to the placement of the ubiquitous cell tower.

The **Public Education/Public Participation Award** goes to the City of El Mirage for its innovative and effective Park Bench and Design Charrette processes. The Park Bench concept enabled conversations with residents about their community. It included a park bench, astro-turf, a shade structure and a kiddie pool filled with rubber ducks, which were offered in exchange for an interview. The Design Charrette was held on site over six days and resulted in community driven planning concepts for a variety of areas throughout the city.

The **Historic Preservation Plan Award** was given to the Silver King Hotel City of Florence. This plan resulted in a true reconstruction and the successful reuse of an important and significant landmark in Florence. We were all impressed by the quality of thought that went into this effort.

The **21st Century Development Award** goes to the Mesa Gateway Strategic Development Plan. This comprehensive approach to guiding development around the Mesa Gateway Airport addresses transportation, land use and economics. It creates four development districts and includes clear graphics and drawings to illustrate desired development types and patterns. Sustainable development principles are applied throughout the plan, and included in the design concepts.

The AZ Planning Association awards program is an important service provided by our organization. It is a way of sharing innovation in product and process. It is a showcase for the great planning that is being done all over our diverse and unique state. Planners are encouraged to be part of the committee or observe the awards process. Starting in January, the committee will be re-examining the entire awards rooster to update and refine the categories to reflect the innovative plans prepared by the variety of planners throughout the State. To participate in the awards update, or to serve on the Awards Committee, contact the AZ Planning Association at pking@azplanning.org

Sustainability Indicators

TOWARDS DEVELOPING INDICATORS OF ENVIRONMENTAL SUSTAINABILITY FOR KATHMANDU, NEPAL

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Abstract

Sustainability is now considered a key objective of urban planning everywhere. However, due to inappropriate planning, weak institutions, lack of resources and poor implementation of policies, most big cities in the developing world have become even less sustainable, environmentally, economically and socially, than they were in the past.

Kathmandu, Nepal enjoyed a unique tradition, rich history and a moderate state of sustainability in all areas, particularly a strong environmental sustainability, in the past. However, the rapidly growing and modernizing city of Kathmandu is facing serious problems of sustainability in all fronts: economic, social, environmental and ecological. Whereas environmental and economic sustainability was tacitly imbedded in the traditional planning practices in Nepal, the rapid expansion and modernization of all the major cities in the Kathmandu valley is making them increasingly unsustainable.

This paper discusses elements of planning for a sustainable Kathmandu, proposes major indicators of sustainability, and discusses an approach to implement sustainable practices in urban planning and development as appropriate for Kathmandu.

Key words: Sustainability, Indicators, Planning, Kathmandu

What is sustainability?

The term "Sustainable Development" was first used by the World Commission on Environment and Development (WCED) in its report "Our Common Future" which was published in 1987. Its definition of sustainable development which "meets the needs of the present without compromising the ability of future generations to meet their own needs"[1] is still the most often quoted definition of sustainable development. Since then numerous writers and organizations have created more encompassing and

specialized definitions of sustainable development. These definitions attempt to encompass a more comprehensive spectrum of sectors to ensure sustainability of a system. One definition particularly related to urban development was developed by the URBAN 21 Conference held in Berlin in July 2000, which states:

> "(Sustainable urban development) is improving the quality of life in a city, including ecological, cultural, political, institutional, social and economic components without leaving a burden on the future generations"[2].

In most definitions the concept of sustainability includes three major dimensions: economic, social and environmental. Due to the urgency created by several global, regional and local environmental problems, such as, global warming, bio-diversity loss, air and water pollution and problems of waste management, the environmental aspect of sustainability is more often emphasized by planners.

Particularly in urban locations, sustainability involves addressing the long term well-being of the people, conserving resources, making long term financial plans, empowering community and ensuring the integrity of the environment.

Figure 1 illustrates the various elements that need to be addressed to manage for sustainability of an urban environment[3].

Figure 1: Sustainability Diagram, Source: WRI Power-save

This paper seeks to address the sustainability issues particularly related to the urban development of Kathmandu, the capital city of Nepal. This paper is limited to devising an approach to develop sustainability indicators for Kathmandu, which can provide some reference to the policy makers, planners and urban development professionals working for the development and management of Kathmandu and similar other cities in developing countries. Given that the Valley's environmental quality is deteriorating at an unprecedented rate, ensuring the sustainability of the environmental quality is of paramount importance. The emphasis of this paper is on environmental sustainability of the Kathmandu Valley.

Sustainability in Kathmandu

This paper deals with the sustainability issues for the entire Kathmandu valley, as it is a single ecological unit. The valley includes the three main cities, Kathmandu, Lalitpur and Bhakpatur. The valley covers an area of 900 square kilometers (347 square miles)[4] total population of the valley is estimated to be 2.35 million (2000 population 1.645 million)[5]. The valley is going through an unprecedented rate of population growth. An indication of this accelerated growth can be seen by the rate of growth of Kathmandu district, which is estimated to 4.71 percent per year[6]. The rate of population growth in Kathmandu is one of the highest in the world.

The valley of Kathmandu was historically a sustainable place from environmental and ecological point of view. It was agriculturally self sufficient and socially harmonious, bound in a social hierarchy that remained intact for a long period of time throughout history. The segregated social structure and its desirability are normative issues that beg a critical review by the standards of today's democratic and pluralistic norms in Nepal. That sociological part however, is not the topic for this paper.

Map of Kathmandu Valley
Source: http://www.gpgrieve.org/3maps/map_valley.html

The environmental quality of the valley is on a speedy decline as can be seen from the high levels of air pollution, water pollution and land pollution in the urban areas. The accelerated levels of pollution have been widely studied by experts, international agencies and Nepal government agencies.[7]

Many management practices will impact the level of sustainability the valley will enjoy. For example, the current population growth is clearly unsustainable if appropriate infrastructure, housing, water supply and other urban amenities cannot keep up with the rate of growth. Furthermore, planners and policy makers have to ascertain whether adequate potential exists for supplying Kathmandu with water, building materials, waste management resources (such as, landfills), pollution control and other urban amenities to ensure an acceptable level of urban quality of life.

Additionally, the availability of energy and use of locally produced energy will also determine how vulnerable Kathmandu is for its energy needs. The increasing use of solar energy and photo-voltaic panels and bio-gas in the valley are helpful indicators of sustainable energy use. However, the use of individual electricity generators, even if they can be perceived as bestowing self-sufficiency to individual home owners and business, are bad indicators of sustainability in the long run. The generators consume petrol, need a regular supply of spare parts, and do not enjoy an economy of scale for energy production.

Traits of Effective Sustainability Indicators for Urban Environment

Sustainability indicators are the instruments for measuring the changes in the quality and state of sustainability of any system. The indicators comprise of information, data and parameters that measure the state of the environment and other sustainability factors. Without indicators, we cannot measure the status, trends and long terms changes in the factors that in aggregate demonstrate the suitability of a system.

The following are the main characteristics of the indicators that can explain and assess the sustainability of an urban area. If the indicators fit these qualities, they will help to examine, monitor and predict how sustainable the urban system is. Although these traits can apply to the study of sustainability of many systems, they are particularly valuable to predict the sustainability in Kathmandu.

Relevance to the Local Conditions

Any sustainability indicator must be relevant and well-suited to the local circumstances. Kathmandu has a unique history, is facing a rapid urban growth, and is burdened by over-strained infrastructure. Furthermore, the environmental quality of the valley is rapidly declining. In this situation, the indicators that can define Kathmandu's sustainability have to reflect this difficult ground reality of Kathmandu.

Imbedded in Social Vision

Indicators become more useful if they help capture the community aspiration and vision of the locality. Kathmandu residents are struggling to modernize a largely traditional society and town in a hurry. Furthermore, people from all over Nepal aspire to come and live in Kathmandu hoping for better mobility, employment, education and other opportunities. Sustainability indicators for Kathmandu must be realistically based on the community vision of its residents, who wish to live in a clean environment, have adequate infrastructure and enjoy a high urban quality.

Easy to Measure and Compare

Nepal lacks critical long term data in urban sector that may be considered basic in developed countries. Especially in the environmental arena, the existing data is of recent origin. Long term time series data have not been kept in Kathmandu. For example, environmental record keeping in a comprehensive manner began only in the mid eighties. Thus indicators have to appreciate this reality.

Helpful to Devise Policy

Kathmandu desperately needs realistic and forward looking planning that can achieve goals and objectives efficiently. If indicators are available for key areas, and if the people and media become excited about the state of the environmental and development as reflected by the indictors, the policy makers can benefit from this linkage. Indictors should arouse a wide interest, and help policy and decisions makers devise swift programs to achieve the stated goals of sustainability.

Supporting the Community to Become Pro-active

Kathmandu's population is relatively young, and is highly motivated as many come from extreme hardship in the countryside. If attractive indictors are devised and publicized, it will motivate the community to become pro-active in their day to day behavior and their efforts to improve the quality of life in Kathmandu and also upgrade their own lives.

Reliability of the Information

Indicators should provide a reliable basis for comparing the sustainability of various infrastructure, utility, energy and urban design elements for Kathmandu. A vague and undefined indicator does not provide a reliable basis to create a rapid improvement of urban quality in Kathmandu.

Based on Available Information and Data

As the quality of data and information on the environment, transportation, housing, water supply and energy use is largely inadequate in Kathmandu; the indictors should be parsimonious using the limited data and information that can be accessed in Kathmandu. As more high quality data becomes available, the indicators of sustainability can also be revised and refined.

Some Possible Indicators of Environmental Sustainability for Kathmandu

This paper recommends some indictors that will be valuable in assign the sustainability of the Kathmandu Valley. These indicators are derived and crafted on the basis of the qualities described above and can be valuable in examining the potential sustainability of Kathmandu Valley, particularly from an environmental and ecological standpoint and urban management.

The proposed Indicators are tabulated in Table 1.

Sustainability indicators provide concrete measure for the quality of environmental, water supply, transportation and other sectors to illustrate the status of the changes in their quality over time. Box 1 provides an example of indicators.

Box 1: Example of Sustainability Indicators

Air Quality Indicator

- The number of days per year when the warning or alarm levels for any specified pollutant (e.g., ozone, tsp, SO2, NO2) exceeds the defined levels of pollutant concentration.

Carbon footprint - GHG emission Indicator

- The annual total and percentage change in the per-capita total emission of CO_2, CH_4, N_2O and O_3 in the valley.

Water Supply: Level Indicator

- The annual volume of ground and surface water extracted for water uses as a percentage of the total replenishable freshwater volume.

Sector	Indicators	Remarks[1]
Environmental	Air pollution levels: concentrate of major pollutants	Indicator in use
	Water pollution levels: extent of major pollutants in drinking water	Regular monitoring needed
	Waste management - solid waste diversion rate	Critical indicator in current situation
	Waste management – capacity and number of landfills and transfer stations compared to waste generation	Weak area at present
	Environmental and Carbon Footprint of Residents	Needs to be developed
Water Supply and Distribution	Capacity of water supply sources to serve the valley	Needs to be developed
	Proportion of population served by potable water supply	Reasonable data exists
	Water consumption per capita	Reasonable data exists
Transportation and Accessibility	Rate of use of public transportation	Weak information
	Percentage of population with car ownership	Data presently exists
	Percentage of residents with access to public transportation	Weak information
Energy Use	Proportion of energy from renewable sources	Information exists
	Energy use per capita	Data exists
	Effectiveness of energy conservation programs	Needs to be developed
	Proportion of energy from local sources	Needs to be developed
Housing and Urban Design and Management	Percentage of housing that is affordable	Needs to be developed
	Public green open space per capita	Data exists
	Percentage of population living in squatter homes and slums	Data is scattered
	Percentage of land with urban agriculture	Needs work
	Percentage of land with urban forestry	Needs to be developed
	Population density by neighborhoods	Some data exists

Table 1: Proposed Sustainability Indicators for Kathmandu, Nepal.

City	Environmental Quality	Water Supply	Transportation & Accessibility	Energy Use	Housing and Urban Design
Kathmandu	Poor	Poor	Fair-Poor	Fair	Fair-Poor
Calcutta	Poor	Poor-Fair	Fair	Fair	Poor
New Delhi	Poor-Fair	Poor-Fair	Fair	Fair	Poor
Manila	Poor-Fair	Fair	Fair	Fair	Poor
Bangkok	Poor	Fair	Fair	Good	Fair
Seoul	Good	Good	Excellent	Good	Good
Singapore	Excellent	Excellent - Good	Excellent	Good	Excellent

Table 1: Proposed Sustainability Indicators for Kathmandu, Nepal.

Comparative Indicators of Sustainability

Table 1 shows a subjective assessment of the quality of the some sustainability indicators for some Asian Cities. This comparative table is created based on personal experience, and literature review. This subjective assessment aggregates the indicators as shown in Table 1. Kathmandu's sustainability indicators rate poorly compared to selected Asian cities.

Conclusion

Sustainability is critical for planning and management in Kathmandu. Many of the urban practices and the ground reality of the situation in Kathmandu indicate that the present business-as-usual scenario is unsustainable. Particularly, the quality of life and urban environment has suffered a drastic level of damage vastly reducing the quality of life in the valley. The valley's environment is likely to deteriorate even more over time, if sustainable urban practices are not urgently implemented.

Sustainability indicators should be developed to reflect the uniqueness of the location. Kathmandu's unique urbanism requires selecting and modifying indictors that suit the local conditions.

Planners and policy makers need to be able to compare the indicators of sustainability on a regular basis to ensure that Kathmandu residents will enjoy a high quality of life for a long time, and the urban system will not collapse because of poor practices in urban management. Appropriate sustainability indicators will be required for a regular analysis to assess the urban health of Kathmandu.

This paper attempts to specify the characteristics of indicators of sustainability for Kathmandu, and recommends some indictors that will help in achieving sustainability in Kathmandu.

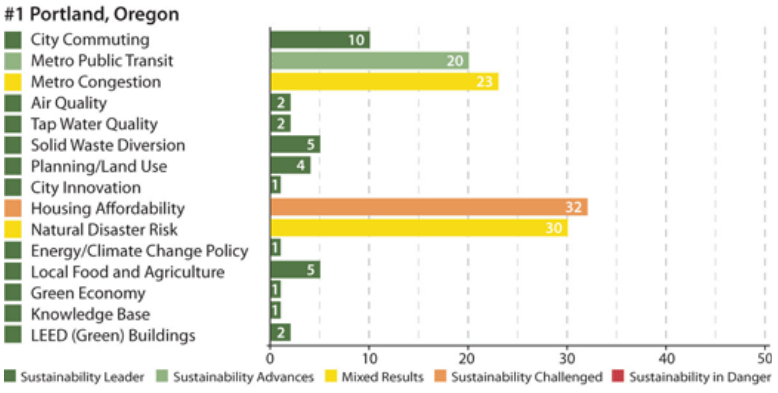
Appendix I: Example Indicators in the USA

Sustainlane.com, which calls itself "The webs largest people powered guide to sustainable living", has utilized 15 indicators to rank the most sustainable cities in the USA[9]. Each indicator has been assigned a weight and aggregating the ranking of each indicator, major US cities have been ranked for sustainability.

Sustainlnae Indicators of Comparing Urban Sustainability, USA

1. Commute to Work
2. Public Transit
3. Congestion
4. Air Quality
5. Tap Water Quality
6. Solid Waste Diversion
7. Planning/Land Use
8. City Innovation
9. Housing Affordability
10. Natural Disaster Risk
11. Energy/Climate Change Policy
12. Local Food and Agriculture
13. Green Economy
14. Knowledge base/Communications
15. LEED (Green) Building

Portland, Oregon has been declared the most sustainable city in the US by Sustainlane.
Figure I provide a graphic representation of the sustainability ranking of Portland, USA, for each of the 15 indicators[10].



End Notes

* Mr. Ambika P. Adhikari, is a Senior Planner with SR-PMIC, Scottsdale, and a Faculty Associate in School of Planning at Arizona State University, Tempe, Arizona, USA

1. UNCED (1987), Our Common Future, Oxford University Press, pp 43

2. Regional Environmental Center for Central and Eastern Europe (REC), web site, http://www.rec.org/REC/Programs/SustainableCities/What.html, accessed on 09-16-08

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4. ICIMOD, UNEP and Government of Nepal (2007), Kathmandu Environment Outlook, Hillside Press, Kathmandu, Nepal

5. Author's estimate based on Central Bureau of Statistics (2000), Government of Nepal, census. http://www.cbs.gov.np/, accessed on 09-16-08

6. ICIMOD, UNEP and Government of Nepal (2007), Ibid

7. See for example several publications by URBAIR, World Bank, Nepal Meteorological Department, IUCN, UNEP, ICIMOD and other agencies on this topic.

8. Author's assessment

9. www.Sustainlane.com, accessed on 9/16/2008

10. www.Sustainlane.com, accessed on 9/16/2008

ARIZONA PLANNING NEWS

DISTANCE LEARNING IS NOT AS FAR AWAY AS YOU MAY THINK

By: Heidi Holloway

As a real estate professional struggling in the market, it became apparent to me that in order to accomplish the professional goals I had set for my future, I needed to lay the proper foundation today. I had gotten caught up in the "boom" that had taken place in the real estate market and my professional life and personal life were nowhere close to being in balance. The plunge in the market was my queue to do something healthy for myself, both professionally and personally. Pursuing higher education, I felt, would aid me in preparing the foundation. I just had to figure out what I would study, where I would study and how I was going to work it into my busy life.

I had always had a strong desire to "plan", so I began looking at what it would take to become competitive as a planner. With my bachelors under my belt I gravitated towards pursuing a Masters degree. But with the struggling economy, rising gas prices, starting a family, an active lifestyle and needing to continue to work in some capacity, how was I going to be able to go back to school? I searched the Phoenix area for programs, colleges and universities, but I found walking onto a campus at my age intimidating and the idea of the hassle involved in a traditional campus classroom overwhelming. Where would I park? And how much would it cost? Did alternative forms of transportation meet my needs? How many days a week would I have classes? How much time would I spend commuting? How much additional time away from my family was I going to have to sacrifice? That is when my husband suggested the distance learning program at Northern Arizona University (NAU). Through online course work I could obtain a Master of Administration degree with an emphasis in Community Planning from NAU and never have to leave the comforts of my home office.

A Distance Learning Option

The distance learning program seemed to be a perfect solution. With an online degree there were no additional costs incurred for traveling, as my car stayed parked in the garage. I could "attend" classes online from my home office with my family in the next room, which gave me the flexibility to stay involved in

our daily routine. I also had the flexibility to continue to work outside my home and not worry about long commutes and a rigorous class schedule. So with a desire to change the world through planning, as I have come to find out nearly every "new" planner has, I set out to acquire my Master of Administration with an Emphasis in Community Planning degree.

The idea of getting an online degree was both intimidating and taxing at first. I had never taken an online class before. Since I am an extrovert by nature and I thrive on social interaction, this was very intimidating to me. A million questions ran through my head. How do I communicate with my professors and classmates? Will I ever get to meet my classmates and have the luxury of building a peer group to bounce ideas off of? What happens if I have a question or do not understand something? Where do I go if I have a question about my program of study or financial aid? I quickly found comfort after my first few weeks of classes. The availability and responsiveness of the NAU staff far exceeded my expectation. Logging on to the university's class website allowed me the liberty of getting to know my classmates through online discussions, I had access to emailing any of my professors and classmates whenever I needed and I even had the ability to utilize online chat rooms and instant messaging. I found this extremely helpful when, occasionally, I had information overload and needed quick clarification on an assignment. The distance learning program has staff available to assist with financial aid questions, administration questions and any technical difficulties you may experience with an online course. I soon learned the value of this instant availability and immediate responsiveness and buried any thread of intimidation I felt regarding communication in an online class setting.

Returning to School After 18 Years

It had been 18 years since I had graduated with my bachelor's degree when I entered into the program at NAU. Initially I feared I would not remember how to study. I would not be able to comprehend the material. I did not have a clue how to cite anything using APA style and I wanted to know where I could get a crash course on it. What I found was an abundance of information provided by the university, the professors and my fellow scholars. Everything you could ever need to do research, write a paper, complete a project or re-learn study habits is all available right at your finger tips. If I did not see what I was looking for, all I had to do was ask someone, anyone, and before I knew it, it would appear, literally right before my eyes. I was amazed at the resources available online. I could access the NAU library right from my computer! This was far easier than rummaging through some campus library as I had experienced in my prior academic life. I also found online resources such as RefWorks, the online bibliography and citation tool, extremely useful when it comes to citing sources for assignments and papers.

It has been my experience that the positives in an online education far outweigh the negatives. The most essential skill I have developed and am still developing is self-discipline. Just like any course in higher education, you are given a syllabus at the beginning of each class. Knowing that syllabus inside out and upside down is the biggest advantage you can give yourself with an online degree. Once you have a firm grip on the syllabus, staying on top of your deadlines and using self-discipline help make your learning process an enjoyable, effective learning experience. Not having to leave the comforts of my own home office not only saves me money and time, but gives me the flexibility to multi-task, continue to work when I need to and still have a family life. In a nutshell, my online education experience at NAU has allowed me an opportunity I have never been given before: the opportunity to find and maintain balance in my life. Balance between my professional life and my personal life…and let's be honest, anyone who can acquire that is bound to be healthier, happier and much more successful.

NAU's Master of Administration Degree Program

If you have thought about an advanced degree in planning and have just been putting it off, consider the distance learning program at NAU and a Master of Administration degree. The Master of Administration degree is a 36-unit, web-based graduate program that combines quality and flexibility with a diverse and practical curriculum. All you need is desire and self-discipline. It is designed for mid-career professionals with five or more years of full time work experience. The program includes 15-units of administration courses and a specialized emphasis that allows you to customize your program based on your professional goals and interests. You will find this flexibility to customize your emphasis suitable for both professional planners and other professionals wishing to develop community planning knowledge and skills.

The Masters of Administration program at Northern Arizona University is flexible and rewarding and can help you meet your future career goals too. For more information on how you can get started on your Master of Administration – Community Planning Emphasis degree today, visit http://geog.nau.edu/MACP/ or contact Alan A. Lew, Pd.D., AICP at 928-523-6567 or Alan.Lew@NAU.EDU . Distance learning is not as far away as you may think.

CITIZEN PLANNER MEMBERSHIP

By Gordon Nedom, Citizen Planner

This is an appeal, once again, for all members who work with Citizen Planners, who are not members of the Arizona Planning Association (APA), to share membership information and invite them to join the APA. The following is a summary of the membership information.

The Association has three goals:

- Advance the art and science of physical, economic and social planning.
- Build public and political support for sound planning practices and policies.
- Provide members with technical information, skill building resources, and exchange opportunities.

Some of the benefits of membership include:

- The opportunity to participate in planning seminars on a variety of topics and issues.
- VISION Magazine, the electronic Chapter newsletter covering the profession, the association, members' activities and conferences.
- Fostering cooperation with other professional groups through joint sponsorships of workshops and information exchange forums.
- A full-membership business, social and educational annual conference.

The APA is made up of individuals interested in planning for Arizona's future and promotes the use of a rational planning process to effectively and efficiently allocate and manage the human, economic and physical resources of the state as its mission.

For further information and a membership application you may go to the Arizona Planning Association website at www.azplanning.org.

UNIVERSITY NEWS

NAU Planning Students Assist Flagstaff Planners

Dr. Dawn Hawley's NAU Public Planning class in Public Participation Techniques was invited by Roger Eastman, Zoning Code Administration Manager for the City of Flagstaff, to participate in the recent Visioning and Coding Design Charrette (October 2009). Students worked with Mr. Eastman and the city's consultants, LWC and Opticos, in advertising the charrette to residents and in preparing the final design boards for the concluding public meeting. As part of the course requirements, the students were also required to attend and actively participate in the week-long charrette and associated activities, including design studios, community meetings and brown bag lunches on special topics. This opportunity gave the students in PL306 experience in working with both city and consultant personnel, as well as teaching them the reasoning and organization behind design charrettes.

The City of Flagstaff Regional Plan update process is being aided by the work of an NAU Planning major. Brandon Rabidou, has taken his course work experience in e-communication and public participation to new heights by creating a multi-linked e-communication site for the Flagstaff Regional Plan 2012 update. Initially created on Wordpress, the blog site has been linked to additional sites on Twitter and Facebook. The original site is easily available in Spanish as well as English. Videos of the focus groups and public meetings are available here, as well as information on future meetings. Comments are recorded, giving feedback information to the city as the planning process moves forward. To view this site:

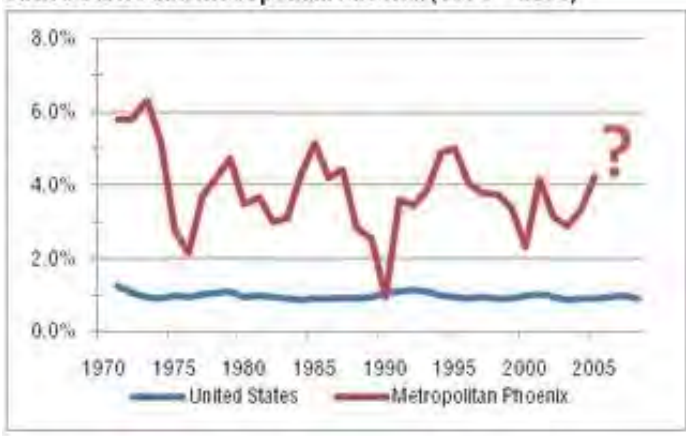
http://flagregionalplan2012.wordpress.com/

Influx/Outflux: Metropolitan Phoenix
A New Growth Trajectory for the Valley?

by David Stocker, Research Director, ULI Center for Balanced Development in the West, with contributions from Trisha Riggs, Vice President, Communications, ULI, and Gayle Berens, Executive Director, ULI Center for Balanced Development in the West

Metropolitan Phoenix could be better positioned for recovery than many people think, according to new research from the Center for Balanced Development in the West. The report, Influx/Outflux: Metropolitan Phoenix, looks at shifts in employment, births, school enrollment, and utility customers, and suggests that the population of metropolitan Phoenix appears to remain unchanged or has dropped only slightly since 2007. ULI gathered this new information on near-term demographic shifts to help inform public and private-sector planning efforts that could hasten the area's economic recovery and future growth.

Annual Population Growth Rate of United States and Metropolitan Phoenix (1970—2009)



Source: U.S. Census Bureau, Population Estimates Program.

This new research indicates that while the state government's 2007 population estimate of 4.2 million is probably high, the level it actually reached—it was measured at 3.9 million in 2005—has likely not changed much, despite the housing market collapse, high number of foreclosures, and precipitous job losses over the past two years. (The actual population total will not be known until the 2010 U.S. Census statistics are released.)

Influx/Outflux suggests that a rebound in Phoenix will be reliant "not on an immediate resumption of rapid population growth, but on creating opportunities for those who have remained in the area," said ULI Chief Executive Officer Patrick Phillips. "While another wave of real estate development is certain to come, a renewed emphasis on sustainable economic development would soften the sharp ups and downs in the real estate cycle and support ongoing population growth into the future."

The report emphasizes the significance of pinpointing even small variations, either up or down: "Important decisions must be made during the coming year—in both the public and private sectors—that will depend on knowing how the population has changed. The difference between positive 1 percent and negative 1 percent population growth could translate into perhaps $1.5 billion in gained, or lost, income and sales tax revenues—and billions more in revenues for private enterprises," Influx/Outflux report says. "In terms of land use, it could mean the difference between new housing demand on the order of perhaps 15,000 units or, alternatively, a 1 percent rise in total housing vacancy. The region's decision makers cannot wait for data from Census 2010 to be released if they are to lay plans in anticipation of an economic recovery."

If the results of Influx/Outflux are validated by the data from the 2010 census, it will represent uncharted territory for a region that has, for decades, been accustomed to steady population growth ranging from 3 to 5 percent annually. And it will beg the question of whether the changes taking place are cyclical or structural in nature.

It's still too early to call whether the slowdown in population growth is a blip, like the Phoenix region experienced in the late 1980s, or if it's the start of a new growth dynamic for the region.

Nonetheless there are already some important outcomes to be considered. It will take sustained growth in the region's base economy to reignite population growth since there are already many more workers in the region that must be absorbed before the employment base can support new residents without income deflation. Only then is it likely that housing production will ramp up to a normal pace of activity. In the meantime, this creates an opening to rethink and improve the region's growth strategy.

While another wave of real estate development is certain to come, a renewed emphasis should be put on sustainable economic development and creating a regional economy where a greater share of business activity is dedicated to building wealth by producing goods and services that are globally competitive.

The key will be to develop and attract talented knowledge workers that can create a durable competitive advantage. These workers will look for high-quality neighborhoods, an amenity-based economy and communities, superior education, and globally competitive telecommunications infrastructure—all of which can be achieved through greater partnership among public leaders and the business community. By working towards these goals, the region's leaders will secure an enduring reputation for metropolitan Phoenix as a boomtown for the 21st century.

The Influx/Outflux report resulted from the contribution of data points from 30 regional data producers and analysts. Included among the data points were numbers from several utilities, housing analysts, school enrollment, homeowners associations, and more. Their data were analyzed by an economist and Center for the West staff, and all the data contributors convened on two separate occasions and agreed on the basic conclusions.

The final report was released in Phoenix on November 17, 2009 at a forum, "Real Demographics: Positioning for a Recovery in Today's Arizona," hosted by the ULI Center for the West and ULI Arizona.

PROFESSIONAL DEVELOPMENT

Worried About Finishing Your CM Requirements by December 31, 2009?

By Mark Eckhoff, AICP
VP of Professional Development for the Arizona Chapter of the American Planning Association

Have no fear AICP Planners - APA and AICP have good news for you if you are behind on collecting or registering your AICP CM (Certification Maintenance) credits. Please read the notice from APA/AICP regarding the grace period being implemented so everyone will have time to obtain their required credits for the first CM reporting period.

While many local and national opportunities are provided to obtain CM credits each year, not to mention an increasing amount of alternative methods for collecting credits, everyone knows that with a new program, the adjustment period is a bit challenging. On top of that, many planners have faced additional challenges with the struggling economy and bleaker than usual times for planning professionals. This official grace period allows some additional time to get caught up with obtaining and logging your credits. Yes, please don't forget the logging in process so all of your hard work is properly accounted for.

Our 2009 Professional Development workshop series just concluded with a successful Bike and Pedestrian workshop in Marana and now we are looking forward to developing an exciting workshop schedule for 2010 and also preparing for our State Association's annual conference in Phoenix. Keep on the lookout for opportunities to present at these upcoming professional development workshops and our conference. Best wishes for the New Year!

Automatic Grace Period (through April 30):

- You will **not** lose your AICP membership if you fail to meet your CM requirement by December 31, 2009.
- At the end of every two-year reporting period, members have an automatic 4-month grace period through April 30 to fulfill the CM requirement allowing members to continue to earn and log credits into their personal CM log, as well as the ability to claim credits for attendance at events they had forgot to log.
- The system will automatically grant members this grace period on January 1st without penalty. There is no need to request this grace period.
- Your next reporting period (i.e. January 1, 2010 – December 31, 2011) will begin on January 1, 2010 regardless of whether or not you need to use the grace period to meet your CM requirement. The more time you wait, the less time you will have to earn credits for your next reporting period.

What can you do?

- Get logging!
  - Check APA's online events calendar (www.planning.org/cm/search/) and read APA Interact for Certified Planners to locate distance education or upcoming nearby events that offer multiple CM credit opportunities.
  - Take advantage of APA's selection of **FREE** distance education products that offer CM credits (www.planning.org/cm/free). Currently, there are more than 32 CM credits available to members.
  - If you are looking to fulfill the ethics & law requirements, APA is now offering a bundle package discount for its online courses - *Ethical Practice for Practicing Planners and Hot Topics in Planning Law.* Members can save 10% when ordering these courses together. (http://professional.captus.com/Planning/Default.aspx).
  - Self-report up to eight CM credits for planning-related activities that have not been registered by a provider. The self report tool can be found on your CM log at http://www.planning.org/cm/log/.

- Need an exemption?
  - There are exemptions for a variety of personal and profesional reasons for both retaining an active membership status or inactive membership status. Access more information and apply at http://www.planning.org/cm/exemptions.htm.
  - Please note: the last day to apply for an exemption from Certification Maintenance (CM) during a reporting period is December 31.

CM Credit Carryover

- You can carry-over up to 16 excess CM credits (excluding the required ethics and law credits) from one reporting period to the next. Once you have met your requirement you will begin the next two-year reporting period (January 1, 2010 – December 31, 2011) with 16 earned credits.

What happens after April 30?

- If you fail to meet the requirement (32 CM credits including 1.5 legal and 1.5 ethics) by the end of the grace period (April 30) your AICP membership will lapse as of January 1, 2010 and you will have to complete a reinstatement process to regain the use of the AICP credential. To learn more about the reinstatement process, please go to: http://www.planning.org/aicp/reinstatement.htm.

PLANNING BUZZ

WHAT JANE JACOBS CAN TEACH US ABOUT THE ECONOMY

Late urban champion's notions about decline and imports newly resonant during this recession.

By: Judith D. Schwartz | October 24, 2009

Jane Jacobs, urbanist, writer and activist, is best known for "The Death and Life of Great American Cities." The lessons of her books are still relevant today.

How is that economic stimulus package working for you? Think TARP was worth those billions? Perhaps our financial system is back from the brink, but just how far — or how long until we're staring down that same precipice — is not clear. Aside from healthy investment-house bonuses and the fact that General Motors still exists, most have seen little change. While our financial pundits are still scratching their heads over why our financial structure plummeted so spectacularly let alone what to do about it, many economic thinkers are turning to urban pioneer Jane Jacobs.

Who?

Most know Jane Jacobs as the ultimate champion of cities, who stood up against neighborhood demolition and saw a vibrant ballet where others saw urban squalor. But three years since her death — and a year into a downturn marked by bailouts, fore-

closures and sky-high unemployment — her economic vision has come into the spotlight.

"People in economic policy and development are looking carefully at Jacobs' work," says David Boyle, an author and researcher at the New Economics Foundation, a London-based independent economic think tank. "She's been very influential, but subtly so. People aren't always aware of where the ideas come from. This is true from the right and left."

In the landmark The Death and Life of Great American Cities, Jacobs called out the folly of urban "improvement" projects that left city districts barren. (Who guessed that people liked to see their neighbors, and that vacant courtyards and hallways invited crime?) In the same way, her 1984 book, Cities and the Wealth of Nations, zeroes in on how well-intended subsidies can deplete growth and block innovation. Wealth, she argues, is not merely a matter of assets but rather the capacity to 1) engage those assets in production and 2) adapt to changing circumstances and needs.

According to Jacobs, the engine of economic life is "import-replacement." What this somewhat clunky term means is making the products you have been buying. For example, much of New England, where I live, is rich in hardwood forest. But there is no large-scale furniture manufacturing here. Aside from what a few artisans produce for a mostly upscale market, it's imported: Our tables, chairs and bed frames are made from fast-growing trees in Southeast Asia, shipped over and stained to look like oak, maple or cherry. If made here, we'd no longer be dependent on furniture from elsewhere; workers here would apply their own innovations to create their own products and techniques and we'd have more products to trade with other places.

This process, replicated over and over and on a large or small scale, invigorates the economy. Workers gain skills, capital gets invested in new equipment, trading partners emerge, consumer taste gets more sophisticated, etc.

This does not happen when a large corporation plunks a factory down in a derelict neighborhood or rural outpost. But that has been the favored approach to perk up an area's economy. The upshot is that the population becomes reliant on one industry that may not be appropriate for the setting. Supplies get shipped in from elsewhere and other wealth-producing activity languishes.

"Jacobs pointed out that to boost an area's economy, the normal plan is to bring in a branch of some big business. But then you have an industry without roots. They're not using local accountants and local printers," says Susan Witt, executive director of the E.F. Schumacher Society in Great Barrington, Mass., which, since its inception in 1980, maintained a close working relationship with Jane Jacobs. "It's through those roots that you get the economic multiplier effect of small businesses. And a branch or factory based elsewhere can leave as easily as it arrived."

Michael Shuman, research and public policy director of the Business Alliance for Local Living Economies, says research suggests that subsidies to attract and retain development are not effective at jumpstarting economies. One unpublished study he led recently looked at the three largest economic development programs in 15 states and found that fewer than 10 percent of companies involved devoted even a small majority of expenditures to local businesses; in most cases 90 percent of the money spent went out of state.

"The economic developers I speak to no longer even try to defend these subsidy strategies," Shuman says. "They've run out of excuses except for the fact that the politicians like them. Politicians get more mileage from one big deal that brings 1,000 jobs than an entrepreneurship program that generates 10 jobs in 100 local businesses. Even when the rhetoric has shifted to the importance of local, in terms of where the money goes, it's still following an old and entirely discredited mode of economic development."

As for the stimulus bill, Shuman says it has "the worst features of economic development on steroids. If in a typical year, millions [are] spent on pork, this year more than a trillion is spent on pork." Even if the stimulus package is a success, he says, the program "could have been more successful with less money if we had followed Jane Jacobs' ideas" of local resilience through import-replacement.

She wasn't omniscient, and her modern acolytes aren't claiming that. "Where was Jane Jacobs wrong?" Shuman asked. "What she didn't anticipate was the Internet. The argument that cities were the only important economic engines is weakened considerably by Web-based businesses, which have diversified and strengthened rural economies. Another thing she didn't entirely anticipate was climate change, which makes trade as a tool of growth a little more suspect."

Cities and the Wealth of Nations came out 25 years ago. But the dynamics described are eerily familiar. Take, for instance, what Jacobs called "transactions of decline" — trade encouraged to prop up the economy. An example she uses is ongoing, entrenched military production. This appears productive, but it sucks the oxygen out of the economy. Innovation and entrepreneurship (import-replacing processes) slow down, there's less inter-city trade to spark new products and ideas, and the economy loses complexity and the ability to adapt. Entire regions become dependent on military spending; they need a war for growth to occur.

The real estate market crash followed a similar trajectory, says Sanford Ikeda, associate professor of economics at SUNY

Purchase. "Look at all the incentives in the run-up to the bubble," he says. "People were encouraged to take more risk than optimal, and [many were] making money on unproductive transfers. Not only is this not productive, but it's an obstacle to growth."

One could look at the derivatives market in the same way, as all the entrepreneurial energy goes into the transactions themselves rather than productivity.
The economic downturn has prompted many to question assumptions about growth.

"There is a new focus on what happens on the local level, on import-replacement businesses and what it takes to encourage them," says Schumacher's Witt. "Chambers of commerce are putting more into networking and training for small businesses. There's less talk of tax incentives. These are all Jane Jacobs concepts."

Judy Wicks, founder of the White Dog Café in Philadelphia, and the founder and chairman of the Business Alliance for Local Living Economies, says her business decisions have been informed by Jacobs' economic vision. "I took seriously the notion of 'local supplies with local labor for local consumption,'" she says. "I asked, 'What are we importing that we can make locally?' That's what builds community wealth. Instead of starting another White Dog in another location, I started a Black Cat because there was no store nearby that focused on locally made and fair-trade products."

Jane Jacobs was an advocate of decentralization; her belief that economies function on a regional, as opposed to national, level has helped spur recent interest in launching local currencies.

But her suspicion of bigness was pragmatic rather than ideological: In her view, the larger and more complex the institution or economy, the less accurate the feedback it provides. And accurate feedback is crucial for a system to self-correct. One way to look at our financial near-crash is as the result of crisscrossing feedback loops: mixed messages coming from GDP, foreign exchanges, the stock exchange, housing sales, the data from different parts of the country contradicting each other so that when policy adjusts for one area it destabilizes another like a seesaw that veers up and down but never finds equilibrium.

With so many layers in our financial system, feedback gets lost.

"A large economy is floated by so many factors," says Mary W. Rowe, who runs the New Orleans Institute for Resilience and Innovation, and for several years directed Ideas That Matter, a Toronto institute based on Jane Jacobs' work. "The more opportunity you have to see feedback, the better you can course-correct. This is what the sustainability movement is doing-tightening up feedback loops so that people are aware of [a product's] real costs, such as the environmental impacts, and true costs, of their production, consumptions and disposal."

One advantage of local, as opposed to centralized, production, is that there's more transparency, she says. Efficiency, in the sense of economies of scale, does not always promote wealth and productivity, she says. "You don't want so much control in one place. Most innovation happens on the grassroots level."

It's easy to lapse into theory with economics. But money matters get very real when people are losing their jobs. Could these ideas — import-replacement, adaptation, small feedback loops — help put people back to work? Wicks says yes: "If we start making products at home then we can start dealing with the problem of unemployment."

CHICAGO CLIMATE PLAN

Interview with Sadhu Johnston, Chief Environment Officer, City of Chicago

It's been a year since Chicago created its comprehensive climate action plan. How has progress been in the key areas: building energy efficiency, alternative transportation systems, reducing waste pollution, and renewable energy? Where has Chicago exceeded your expectations and fallen short in implementing the plan?

I'm pleased with the progress we've made on implementing plans across all of our city departments and agencies. Our first year was really about planning and developing implementation plans for each of the sections in the action plan. We've just completed the transportation one and soon wrap up the renewable energy one. We now have road maps in each of those areas for things that we want to prioritize and proceed with in the near term and the longer term. It's just a lot of work — hundreds of people across the city are helping us to put together the actual implementation plans for the broader strategy.

In certain areas, we've already exceeded our goals. Green roofs are a great example. We already have over seven million square feet of green roofs underway in the city of Chicago. That's way ahead of where we thought we would be at this point. We've exceeded the number of residential retrofits that we expected to retrofit this year. Through the Green Office Challenge, we had more people, more high-rise buildings, join us than we expected. In many, many areas, we've seen greater progress than we had expected. Some of it was just luck, and some of it was just really good implementation from city staff and agencies.

We worked with Exelon to develop the world's largest municipal solar installation. It's a 40-acre brownfield site that's been vacant for 30 years. We're using the opportunity to put a ten-megawatt solar installation on the site, and bring it back to productive use without having to spend the 30 million dollars

to clean it up. This allows us to park that site for about 25 years with solar installation while, hopefully, the rest of the area redevelops, allowing us to then clean up that site. There's an example of something that just fell out of the sky. We were just at the right place, the right time, the right partnership.

In terms of challenges, there's not an area that I can point to that I would say we haven't met our goals at this point. We launched a Chicago trees initiative in partnership with about 30 organizations, non-profits in town here that are involved with trees. We are getting them to move forward our tree components of the plan and develop an urban forest agenda.

Many cities are updating their building code, including New York City. What is unique about Chicago's update to its building codes? Have the codes changed so they can both stop limiting innovations and energy efficiency or local energy production and also enable sustainable design practices?

One of the accomplishments we achieved early on in the plan was passing a new energy code. We passed the IECC 2006 code, which was the newest code at the time. There were a couple of unique elements. The first was a new reflective roofing component. We were one of the first to amend the code to require a higher reflectivity on roofing surfaces to address the urban heat island effect.

At the national level, Congressman Blumenauer of Oregon has been promoting increased walking and biking as a key tool for bringing down CO2 emissions from cars. Part of this involves investing in city and community infrastructure — complete streets — to ensure greater access for pedestrians and bikers. I've read about the Chicago 2015 Bike Plan. How has Chicago progressed on making its city more pedestrian and biker friendly?

We've added a lot of additional bike lanes and now have over 12,000 bike racks in the city. We're working on a second bike commuter station because the first one has been just so successful.

I've been Chair of the Mayor's Bicycle Advisory Council, which involves working with 40-50 different non-profits and for-profits in town to ensure that we're implementing the plan effectively. There's a lot happening on biking. The part that really complements the climate action plan is the transit-oriented development (TOD) component, which ensures that new developments tie into existing infrastructure seamlessly and support that infrastructure.

A recent study from CEO for Cities found that walkable, bikable communities also have higher property values. So conversely, car dependent communities have lower property values. When you calculate the financial return on sustainability investments, do you consider gains from higher property values (and property taxes)?

The Lurie Garden, Millennium Park, Chicago, Illinois
Gustafson Guthrie Nichol Ltd, Seattle, Washington.

Millennium Park is a great example. There has been a lot of reinvestment in those properties. One question we ask is: "Are people reinvesting in the properties adjacent to additional new facilities?" Generally, the answer is "yes."

Mayor Daley has also promoted planting trees and shrubs around houses to reduce temperatures and energy usage. Lawrence Berkeley National Laboratory and Sacramento Municipal Utility found that trees placed around houses to shade windows yielded between 7 and 47 percent energy savings, depending on where the tree was placed. How has Chicago incentivized greater use of this relatively simple, yet highly effective, green technology?

Years ago, we passed a landscape ordinance, which requires tree planting every time you do a new development. This was one of the first strategies the Mayor pursued to ensure that if you're doing a new home, parking lot, or new building you're utilizing green infrastructure. We've just completed a process called Green Urban Design. This was passed a few months ago by our City Council on Development (CDC). The CDC approved the Green Urban Design plan, which helps us to ensure that the green infrastructure that we're installing is playing an ecological role in addition to a beautification role. This is really what our original landscape ordinance was based on. What we call the GUD process was the first attempt on our part to ensure that green infrastructure has an ecological purpose as well.

Chicago City Hall Green Roof, World Business Chicago

Chicago is now famous for installing millions of square feet of green roof across the city. How critical are these green roofs to the city's program for a sustainable stormwater management?

They play an important role. However, we couldn't give credit to a new development for installing a green roof until we passed our storm water ordinance a couple of years ago. Now, every new development is required to calculate stormwater runoff and figure out how they can keep at least a half-inch of that first rain onsite for utilization and bioswales, green roofs, or other green infrastructure, like permeable pavements. Green roofs can play a significant role in stormwater plans for each site.

What other cities does Chicago look to as a model of sustainability? Are there other cities in the US? How far ahead are major cities, like Tokyo, Stockholm, other green innovators?

Mayor Daley travels a lot and hears great ideas all over the world. He then takes those ideas and embeds them here. We borrow heavily from all sorts of places. There are cities all over the world that are clearly examples in different ways for strategies we can implement.

"AGRIBURBIA" SPROUTS ON COLORADO'S FRONT RANGE

By Jason Blevins, The Denver Post

Matthew "Quint" Redmond walks a lettuce field in Lakewood. Redmond sees a future where homes are engulfed by farms that feed them — and make income by also selling to local restaurants. His 944-home project in Milliken is ready to break ground. (Craig F. Walker | The Denver Post)

Six years ago, Matthew "Quint" Redmond suggested to Milliken planners that a corn farm north of Denver could increase its agricultural value and still anchor nearly a thousand homes.

"I got laughed out of the room," Redmond said.

Today, Milliken's 618-acre Platte River Village is ready for construction, with 944 planned homes surrounded by 108 acres of backyard farms and 152 acres of drip- irrigated community farms. The plan is for the farms to feed local residents and supply restaurants while paying for community upkeep. And Redmond, a 47-year-old planner-farmer, has 13 other Front Range projects mulling his "agriburbia" concept.

Redmond, co-founder of the Golden-based design firm TSR Group, travels the country preaching his urban farming and development idea. He envisions a future where the nation's 31 million acres of lawn are converted to food production. He sees golf-course greens redefined with herbs; sand traps as "kale traps." He sees retirement homes engulfed by farms and office buildings where workers escape cubicles on farming breaks. Redmond, along with his born-on- a-farm biologist turned planner wife, Jennifer, sees an urban landscape like none before.

"This is where we are all going to go. We need this," said Redmond. "Everyone thinks they are so smart by crafting a 2030 plan for the future. I say we need a $180-a-barrel plan, on how our communities can be self-sufficient when oil becomes too expensive to ship food across the country."

Self-sufficient. Sustainable. Locally produced. Agriburbia incorporates all three concepts.
"Is there a better use of the land than growing your own food right where you are going to be eating it?" said Janie Lichtfuss, mayor of Milliken, which is positioned to become the first agriburbia community.

"This seems to me to be the best of both worlds, with good use of the land for development and agricultural production too."

The Redmonds are pursuing three avenues when pushing agriburbia. First, their TSR Group works with homeowners with less than an acre, designing an "edible landscape" that not only provides food for the family but also contributes to the group's network of restaurants.

The Redmonds also work with landowners sitting on their property and waiting for the economic revival when they can begin building and selling. The Redmonds manage those empty parcels as "steward lots" that feed local restaurants and deliver cash to the landowner.

And thirdly, the Redmonds are trying to develop farm-cultured communities like Platte River Village in Milliken. Homes surrounding farms already are planned for the middle of Littleton and Boulder, using small spaces to grown organic produce.

Jenny Redmond, Matthew's wife, inspects lettuce in the Lakewood plot. (Craig F. Walker, The Denver Post)

Planners in Lakewood two months ago approved agriburbia in the city's Solterra community.

In Douglas County, the Redmonds are proposing agriburbia in the development of Sterling Ranch near Roxborough State Park.

Right now, the county is looking at the water requirements as well as what crops could thrive.

"If the people support it, we are in position to retrofit some lots for agricultural use," said Terence Quinn, Douglas County's director of planning services. "Agriburbia is one of many different angles we as a community can pursue to become sustainable in the long run."

The idea is to save farming and feed communities.

"If you grow your own food, you make the land that much more efficient, and our carbon footprint as a human race is going to shrink so much," said Jennifer Redmond, noting that in the traditional food model, as many as 20 entities touch food as it travels from farm to table. "We shorten that supply chain, and everyone wins."

But it's not just the right thing to do, Redmond said. It's profitable. Redmond predicts homeowners and developers will realize that food-production revenue never declines, unlike traditional development models where revenue stops flowing once all the homes are sold.

"Everyone thinks the most efficient, intense use for land is always density," Redmond said as he harvested lettuce and carrots from a formerly weed-choked acre he manages in Lakewood. "There are more intensive uses for urban land."

CAIRO: SUBURBANIZING THE DESERT

Construction booms and real estate speculations were a global phenomenon in the past decade. Under neoliberal policies, governments encouraged private entrepreneurs to develop mega projects. In many cases these projects had no ecological or social concerns and were often allowed to violate city regulations and to fence-in public space. The free market unevenly concentrated investment, growth and redevelopment in certain areas, while other areas became increasingly abandoned and marginalized.

In Cairo, large investments from other Arab countries fueled this process, and a good part of the resulting benefits ended up lining politicians' pockets. While governments in developing countries have given incentives for construction to create jobs, especially for unskilled workers, many times these subsidies end up in the wrong hands. After a crisis in 1990, the IMF required Egypt to apply neoliberal policies. Only 5% of the citizens, benefited from the resulting privatizations and subsidies.

Alegria development, Six of October, Cairo

Now, in a time of oil and water crises, President Mubarak is creating new cities in the desert—luxury suburban oasis—which are sprouting up several miles outside of Cairo on former military or state lands. The government has sold this cheap, dry land to developers, invested and constructed modern highways for the new car-owning suburban dwellers and subsidized water for their luscious desert lawns.

These new cities, which include Sixth of October and New Cairo, recreate the American suburban typology: they are not walkable and lack a decent public transportation system. These new 'cities' are composed of shopping malls and gated communities that offer safe and unpolluted environments away from the city, as well as exclusivity, green landscape and, of course, golf courses.

Speculative builders profiting from the government subsidies doubled the size of these new cities by marketing foreign and bogus green lifestyles that are completely unsustainable. Coincidentally, one of the luxury suburbs, called Alegría, is owned by the father-in-law of President Mubarak's son. In other words, president Muberak's son is married to the daughter of one of the biggest developers in Egypt.

Despite the construction boom, only 25% of the units in the desert suburbs are occupied. In the rest of Cairo, there is a massive housing crisis affecting a large population that is living in overcrowded, illegal settlements without running water or sewer systems. People are living in the worst conditions. There are squatters on rooftops, people living in cemetery mausoleums (City of the Dead) and the city continues to sprawl out, with four to five storied informal constructions.

City of the Dead and Historic Center, Cairo

Regardless of this urgency for housing, the government has created incentives for the construction of luxury housing while limiting the construction of low-income housing. The misuse of government funds indirectly benefiting the high-end construction market is more widespread than one may think and distorts the very concept of *laissez-faire*, which is central to neo-liberal policies. This distortion is causing the decay of the center of the city as the upper and middle classes leave it to its fate as it fails to attract private or public investment.

OF FARMS, FOLKS AND FISH

A truce in California's long and bitter fight over water at last appears possible

IN 2007 Oliver Wanger, a federal judge in California, ordered the huge pumping stations of the Sacramento Delta, the largest estuary on the west coast of the Americas, to reduce by a third the water they delivered to two aqueducts that run south to the farms of the San Joaquin Valley and onward to the vast conurbations of southern California. His reason was the delta smelt, a translucent fish less than eight centimetres (three inches) long that lives only in the delta and is considered endangered under federal law. The pumping plants were sucking in the fish and grinding them up. The next year, a "biological opinion" by the federal Fish and Wildlife Service reinforced Judge Wanger's order. Pumping from the delta remains restricted.

The consequences of these restrictions, which coincided with a drought that is now in its third year, reach far beyond one small population of fish. About two-thirds of Californians get at least some of their water from the delta, so with the stroke of a judicial pen the entire state, the world's eighth-largest economy and America's "fruit basket", entered an economic and political crisis.

Water has divided Californians since Mark Twain remarked that "whiskey's for drinking, water's for fighting over." But this latest conflict comes as America's largest state is politically gridlocked and holding back a national economic recovery. From Australia to Israel, parched places all over the world are now looking to California to see whether, and how, it solves one of the most intractable problems of thirsty civilisations in dry regions.

The pumping restrictions were a huge victory for environmentalists, who fill the ranks of one of the three armies in California's perennial water wars. With increasing success since the 1970s, greens have argued that the delta in particular, and California's dammed rivers and wetlands in general, are on the verge of ecological collapse and must be saved.

For the other two armies, the restrictions amounted to a stinging defeat. One army consists of urban consumers in the dry south, represented by the Metropolitan Water District, which supplies water to about 19m people, over half the state's population, and gets 30% of its supply from one of the two delta aqueducts. The authority has had to pay farmers in the Central Valley to give up their allocations and let their fields lie fallow, says Jeffrey Kightlinger, its boss. This year it also had to impose mandatory conservation measures.

The pain has been far worse, however, for the third force: agriculture. The farmers and farm workers who have been hardest hit live in the western San Joaquin Valley, which is supplied by the Westlands Water District, America's largest irrigation authority. Westlands has contracts to draw water from the other (federally financed) aqueduct. Tom Birmingham, its boss, says that, because of the drought and the pumping restrictions, it is receiving only 10% of its entitlement this year.

The result, says Mr Birmingham, is fallow land, farm workers being laid off and "people standing in food lines for hours". In some areas unemployment runs at 40%. There are scenes reminiscent of John Steinbeck's "The Grapes of Wrath", though most of the poor and jobless are not white "Okies", but Latinos. Just as the "dust bowl" swept across the Great Plains in the 1930s, so in the San Joaquin Valley, fields are reverting to desert and signs read, "Congress created this dust bowl".

"All my almond trees are going to die," says Shawn Coburn, a farmer in the area. He began farming in 1992 and has done everything he can to use water more wisely. He has planted fewer tomatoes and melons and more almonds and wine grapes because these crops drink less and yield more. He says he has conserved all he can with technology. Like other farmers, he has also dug wells to tap the shrinking aquifers, even though he knows he is making the entire valley floor sink. In one place, he says, the ground around a telephone pole has dropped by six feet (nearly 2 metres).

The environmentalists are not denying that their victory has cost agricultural jobs. But Jonas Minton of the Planning and Conservation League, a Californian non-profit outfit, thinks that a public-relations firm paid by the farmers has been exaggerating their misery. In any event, he says, the problem is not a court ruling but a system in which the state has pledged eight times as much water to title-holders as exists in nature and therefore cannot, of necessity, give everybody his due.

Jim Metropulos, a lobbyist at the Sierra Club, another environmental group, agrees. "I cannot control a drought," he says. Westlands' Mr Birmingham can complain, he says, but, "Why do we have to give him more water?" It so happens that Westlands' water rights rank below those of other title-holders and "there is simply not enough water to go around."

Angry and bitter words are thus flying on all sides, which is as it has always been in California. But this time the crisis has become so severe that the state's legislators in Sacramento, notoriously incapable of agreeing on anything serious, including a punctual budget, appear on the brink of a breakthrough. A complex package of legislation was almost passed in September and failed only because time ran out in that session. The legislators are now talking again. A deal could emerge for a vote within weeks.

Peace among coequals?

Timothy Quinn, director of the Association of California Water Agencies, which represents the suppliers of about 90% of the water consumed in California, credits the pumping restrictions for this progress. He says Judge Wanger forced all sides to acknowledge the seriousness of the situation. His decision was the "equivalent of an earthquake" whose shock was severe enough to shake California's democracy. Therein lies, perhaps, the opportunity.

The details of the legislation negotiated so far are complex, but its main feature is a phrase, "coequal goals"—though how coequal goals differ from equal ones is not clear. For most of the previous century, says Mr Quinn, California and the entire West had an "extraction mindset" according to which man was meant to subdue and exploit nature. In water matters, this meant ever more dams, reservoirs and aqueducts. However, over the past four decades the environmentalist mentality grew up as an alternative, emphasising "sustainable" use of nature.

California's water policy in the past has swung "like a pendulum" between these two principles, depending on which lobbyists have won the latest victory, says Lester Snow, the director of California's water department. Enshrining the objectives of both sides as "coequal" in state law would thus mean progress, by requiring all factions to consider both fish and farms, both nature and the economy, both sustainability and reliability.

"It's a huge step," agrees Mr Kightlinger of the Metropolitan Water District. In practice, most water managers in the state already take sustainability seriously, but making equality official would force all sides to "play nicely", he thinks. The old rivalry between urban and agricultural water use has already faded, he says, and today's animosity between both of them and the greens may also subside.

Westlands' Mr Birmingham says that, in practice, water usage has already become equal. Whereas agriculture used to consume 80% of the state's water supply, today 46% of captured and stored water goes to environmental purposes, such as rebuilding wetlands. Meanwhile 43% goes to farming and 11% to municipal uses.

The environmentalists, as today's top dogs, are less excited about equal goals. At present the state's water infrastructure is run with a single goal, which is to protect nature, and this, says Mr Metropulos of the Sierra Club, provides complete clarity of purpose. Equality, he thinks, will only lead to new conflicts and litigation. When the time comes for trade-offs, he asks, "Who's going to make the decision? It is undefined." He is lobbying against the legislation, although he is unlikely to prevent it.

Dealing with The Delta

The next layer of legislative proposals will concern the Sacramento Delta, the inland network of streams and rivers, many contained by dykes and levees, that form the hub of California's water infrastructure. Californians hate rain but love water, so three-quarters of them live in the arid south, spurn the wet north where three-quarters of the rain falls, and expect water to come to them by pipe, canal or aquifer, preferably courtesy of the taxpayer.

The Sacramento and San Joaquin rivers and their tributaries, carrying the rain from the north and the melting snowpack from the Sierra Nevada in the east, meet in the delta and flow out through San Francisco's Golden Gate. The trick has always been to intercept the fresh water in the delta before it gets salty and to send it south as well as west to the San Francisco Bay area.

Those in the south get it through two huge infrastructure networks. The federal Central Valley Project, dating from 1937, uses 20 upstream reservoirs and two pumps to take water to the southern Central Valley, largely for farmers. The State Water Project, begun in 1960 by Pat Brown, a visionary governor, uses another 22 upstream dams and reservoirs and its own pumping plant to send water into the other aqueduct, largely for urban use.

By pumping fresh water south, however, these two projects wreak ecological havoc. Sceptics like to inveigh against the unprepossessing delta smelt, which George Radanovich, a Republican congressman, has called "a worthless little worm that needs to go the way of the dinosaur". But other fish species such as the Chinook salmon, the steelhead and the longfin smelt are also threatened, and each species is a part of a complex food chain. About 25% of the state's sporting fish and 80% of its commercial fish live in or migrate through the delta.
Pumps kill, levees leak

The pumps kill fish and other species, and not just by grinding them up. They also change, and occasionally reverse, the water flow of the small rivers in the delta's vast labyrinth of streams, creeks, sluices, islands and marshes. In natural circumstances, the delta is brackish and its salinity changes with the tides. The pumps, by drawing in river water, keep the delta water artificially fresh. Native species die, invasive species thrive.

Beyond that, the ageing delta's levees are a human disaster in the making. The delta sits on top of seismic faults that may rupture, and many of the islands that make it up are below sea level. A large earthquake could disrupt the state's water supply and inundate the delta itself.

The best answer, says Ellen Hanak, a water expert at the non-partisan Public Policy Institute of California, is to build either a canal or a tunnel around the delta. Fresh water could then be tapped upstream on the Sacramento River and conveyed round the delta to the aqueducts without grinding up fish, reversing river flows or changing the delta's salinity, which would again fluctuate with the tides. The water going south would be fresher too. A canal would thus "separate the water for the fish from the water for the economy and the people," says Mr Quinn.

Alegria and Dreamland developments, Six of October, Cairo

The trouble is that such a peripheral canal is a political hot button. In 1982 Jerry Brown, Pat Brown's son and California's governor at the time, put a canal on the ballot but the voters rejected it. Even now, many people are passionately against it. Farmers and residents in the delta itself fear that a bypass would mean that politicians and public money would abandon them amid their disintegrating levees, and others would grab their water. The Sierra Club is against a canal because "it is not

going to make new water" and "we want to reduce exports from the delta" rather than reroute its flows, says Mr Metropulos.

The legislation under negotiation is therefore taking a different approach. Instead of decreeing a bypass canal or tunnel outright, it seeks to establish a new authority with the power to take this decision itself. This is sorely needed. Mr Snow at the water department has counted more than 200 entities, from cities and counties to fisheries and reclamation or irrigation districts and even mosquito-abatement boards, that share responsibility in such a way that nobody has any. A new and nimble "Delta Council" would seize authority from all of them and actively manage the delta for the first time. And it could do this by building a canal.

Dam Money

One sign of progress by Californian standards is that, if the deal gets stuck, it will be largely over relatively banal issues such as money. The legislation is likely to mandate investment in new dams and reservoirs, which appeal to Republicans, and also in waste-water recycling, desalination and groundwater storage, which are the environmentalists' and Democrats' preferred sources of water. But Arnold Schwarzenegger, the Republican governor, has said that he will veto any legislation that does not include billions of dollars in new bonds to pay for these new projects.

State Republicans, allied to farmers, are pushing for "general-obligation" bonds that would be put to the voters on a ballot and, if approved, paid out of general state tax revenues. Democrats are concerned that the interest on such bonds would aggravate California's continuing budget dispute and come at the expense of education, health care and other things they mind about. They prefer bonds that would be repaid by the users of new dams, ie, the water agencies that can pass costs on to their customers. Water thus trumps ordinary politics. Republicans, who usually claim to be against big government, want taxpayers to pay; Democrats, generally accused of being big spenders, want to match infrastructure costs with water revenues to send the right price signals.

The legislation is likely to encourage water conservation by setting targets for reducing consumption. One guess is that it may call for a cut of 20% per person by 2020. That cannot be a bad idea. On the other hand, little progress is being made on monitoring groundwater levels, even though many aquifers are shrinking. Some of the state's water districts voluntarily measure groundwater levels, but Republican legislators have opposed making such reporting mandatory on the ground that it would mean trespassing on private property. "California is the last bastion of the Wild West when it comes to groundwater," says Ms Hanak. It may stay that way.

Whatever happens, the legislation will not deal with the long-term threats to California and its neighbours. Climate change is already showing up "in the data", says Mr Quinn. The snowpack of the Sierra Nevada, California's most reliable water-storage system, is shrinking and may stop yielding predictable run-off in the spring and start producing sporadic and unusable, not to mention disastrous, floods. The delta is already below sea level and, as the sea rises, it may be submerged. Even today the south is a desert wherever irrigation does not reach. It will become even drier.

For professional water managers such as Mr Kightlinger, this makes the continuing talks in Sacramento frustrating. "'I'm for screwdrivers but not for hammers': that's how they talk," he says. But he thinks all the tools are needed if California's population and economy are to keep growing.

Of those tools, water recycling, a euphemism for cleaning up sewage, is perhaps the most promising. Recycled water is local and does not disappear in a drought. But many consumers continue to struggle with the idea that what they are drinking today someone else restored to the water system yesterday. Desalination, which removes minerals from seawater or, more often, brackish groundwater, is an alternative. But it takes a lot of energy to push water through the dense filters that remove unwanted salts and other molecules. Water markets, which allow those with too much water to trade it easily with those who have too little, could also help.

If there is to be any progress, however, Californians first have to bury their hatchets. If the talks stall, the political fallout will be big. Tom Campbell, the most thoughtful Republican candidate for governor in next year's election, thinks water is by far the most important issue facing the state. Willie Brown, a former speaker of California's Assembly and mayor of San Francisco, believes "a political earthquake is rumbling in the Central Valley over water, and it could cause a real tsunami for the Democrats in the 2010 elections if they don't handle it well," since Democrats are more associated with environmentalists and several of them face re-election.

A chance to make history

For the same reason, if the negotiations succeed, even a mediocre deal would amount to the most important water legislation since the era of Pat Brown, says Mr Quinn. Westlands' Mr Birmingham feels that many environmental groups, such as the Natural Resources Defence Council and the Nature Conservancy, have become "genuinely interested in working with water agencies", even though others are "using water as a means to limit housing development".

"I am very optimistic for the long term," says Mr Birmingham. "The real question is how are we going to survive between now and the time when new conveyance facilities become available," which could be a decade or more. "If we continue to live under the existing biological opinions, irrigated agriculture in the western San Joaquin Valley cannot be sustained," he says. For farmers such as Mr Coburn and his 26 Latino workers, never mind his almonds and wine grapes, the help may arrive too late. This is perhaps the only thing they have in common with the delta smelt.

PLANNING COMMENTARY

FIVE WAYS TO CHANGE THE WORLD

By Jonathan Massey, Assiciate Professor of Architecture, Stracuse University

So you want to change the world? Start by changing the built environment. Buildings shape our experience and open up or close down possibilities for life. Hardly anyone gets to realize his or her visions for transforming society, but activism through architecture is a place to start. Here, I offer a guide, idiosyncratic and partial, drawing on personal experience and American history, to how architecture can contribute to social reform.

Vote

Given the narrow range of choices on the ballot and the wide range of current concerns, going to the polling place and flipping levers, punching cards or tapping touch-screens can seem futile. But aggregated into majorities at the local, state and federal levels, these tiny gestures have big consequences — not least for architecture and urbanism. Government has direct impact on the built environment through the construction of roads and highways, seaports and airports, schools and universities, police and fire stations and utilities for power, water and sewage. These are constructed through state patronage and they are powerful instruments of policy. Who sits in office shapes our world.

There is no greater example of federal patronage than Franklin Delano Roosevelt's New Deal. Throughout the 1930s this extraordinary set of programs — enacted to spur recovery from the (first) Great Depression — transformed the nation through huge public works such as the dams and power plants of the Tennessee Valley Authority, and a raft of programs from Social Security to the incentives for homeownership that promoted postwar suburbia. The New Deal was based on the Keynesian principle which states intervention is sometimes necessary to support vitality — a perspective that has informed most large-scale urban development of the past eighty years, and is once again a familiar theme in political debates.

Every time I travel through Albany, I marvel at Empire State Plaza, the modernist state capitol complex built in the 1960s and '70s, when Nelson Rockefeller was governor of New York. Designed by a team of architects led by Wallace K. Harrison, the plaza replaced an early-20th-century mixed-use downtown neighborhood with a grand modernist mall of administrative offices set atop a podium several stories high and more than a quarter-mile long. Four towers flank its west side and opposite, along the eastern edge, is an even loftier skyscraper of 44 stories. A blocky "cultural education center" anchors one end of the podium, facing off against Leopold Eidlitz's late 19th-century state capitol, while an egg-shaped theater rounds out the ensemble. Like its Latin American cousin, Brasilia, the Empire State Plaza combines a bold scale and modernist forms to convey the power of the assertive Keynesian state.

Empire State Plaza, Albany, during the late stages of construction.

Impressive in its own right — a 98-acre marble-and-steel statement of the modernist ambition to remake the world — the Albany mall is just a small part of Rockefeller's architectural legacy. Nelson Rockefeller's administration built public housing throughout the state, new campuses for the growing state university system, and an expressway connecting Albany to the Interstate. A vote for Rockefeller in 1958, 1962, 1966 or 1970 was a vote for the State University of New York and the New York Thruway — and for large-scale social changes through housing, education, highways and other ambitious public works.

Less apparent, but more pervasive are the countless laws that regulate private construction and investment. It's easy to see how building and zoning codes shape construction; we're usually less aware of the impact that tax codes have on our buildings, cities and suburbs. By assessing different types of expenditures at different rates, tax codes create a complex web of incentives for individuals and corporations, the consequences of which are diffused yet extensive. The mortgage interest deduction, for instance, encourages people to buy rather than rent housing by lowering the cost of financing a large loan. Since 1976, tax credits for expenditures on historic preservation have encouraged the restoration and reuse of old buildings. More recently, brownfield credits have rewarded investors who redevelop former industrial sites rather than build on greenfield sites at the urban fringe. The Energy Star program offers homeowners tax credits to offset investments that increase the efficiency of insulation, windows, water heaters and solar and fuel cell energy systems.

Tax-credit programs live and die by legislative consensus, so your ballot filters through the checks and balances of representative government to help determine the choices you have in employment, housing and social life. The end of postwar urban renewal and the decline of modernist planning had many causes — but not least was the political shift from the Keynesian era of Roosevelt and Rockefeller to the privatizing age of Ronald Reagan. A vote for Reagan in the 1980s was a vote against the public-spirited state in favor of market-based policies. During Reagan's presidency, the Department of Housing and Urban Development stopped funding federal projects in favor of giving tax incentives to private developers to build low-income housing. Today the Great Recession is reviving debate about public solutions, and the Empire State Plaza remains an ambiguous, somewhat forlorn monument to the once assertive liberal agenda.

Shop

Most of us vote only once a year (if that). Almost every day we express our preferences when we take out our wallets. When you decide whether to buy a car, a bike or a bus pass, you register a choice for particular land use patterns, architectural configurations and social orders. Buying and spending are a big part of our lives — especially middle-class American lives. And unlike the mechanisms of political action, shopping offers an easily available and extraordinarily nuanced vehicle of expression and selection. For every top-down utopia, there are a thousand bottom-up initiatives generated by the localized activity of entrepreneurs and consumers. Usually the result is junk, but once in a while something revolutionary crops up.

Consider the automats that flourished during the first half of the 20th century in European and North American cities. Self-service restaurants that merged the vending machine with the cafeteria, automats struck some American critics as harbingers of social decline, seedy eateries selling cheap calories to urban loners. Automats were in fact precursors of the drive-through and the fast-food franchise, and for decades they provided affordable fare in anonymous settings only minimally monitored by staff and managers. The outcome was a new kind of public space that suited the budgets and tastes of women and men living alone in U.S. cities. The mix of plain food, unsupervised setting and plate glass windows made automats as well as cafeterias key arenas for the emergent queer culture of capitalist modernity. Gay men and lesbians turned some of these places, like the Childs Restaurant on Broadway in Times Square, into late-night "fairy hangouts" where, for the price of coffee and a slice of pie, likeminded folks gathered, traded tips about the still largely underground gay world, and showed off pansy fashions that would get them canned at work.

Access to community and visibility made bars and restaurants formative sites for not only for queer social life but also for political activism. In 1966, members of the Mattachine Society, an early gay rights organization, staged a "sip-in" at a West Village bar to protest laws against serving obviously gay patrons. On a legendary night three years later, the trannies, drags, dykes and fags of the Stonewall Inn rebelled against police repression and then celebrated on Christopher Street stoops through the weekend. [1]

John Timmins, Dick Leitsch, Craig Rodwell, and Randy Wicker at the Mattachine Society sip-in at Julius's Bar, New York, April 1966. [Credit: Fred W. McDarrah, Gay Pride: Photographs from Stonewall to Today (Chicago: A Cappella Books, 1994)]

In this gay experience is neither unique nor original. The Mattachine sip-in was inspired by the lunch-counter sit-ins staged by civil rights activists. Commercial spaces were key sites for African-American civil society. In Chicago's Bronzeville district during the 1920s, black entrepreneurs ran businesses that doubled as transformative social spaces. The neighborhood boomed as the Great Migration brought African-Americans to Chicago from the countryside and the south. Bronzeville was home to the Chicago Defender, an influential black weekly, along with the churches, civic associations, restaurants, nightclubs, theaters and hair salons of one of the largest and fastest-growing black communities in America. In 1922, Anthony Overton constructed a block-long four-story building to house his expanding business in cosmetics for the African-American market. The Overton Hygienic Building also accommodated the entrepreneur's other businesses, notably the Victory Life Insurance Company and the Douglass National Bank, the first federally chartered black-owned bank. Overton rented ground-floor storefronts and second-floor office space to other businesses and to Bronzeville's doctors, lawyers and architects. At its heyday, the Overton Building teemed with workers, professionals, customers and clients who were collectively creating a new and distinctly modern social world. Everyone who purchased Overton face cream, a Victory insurance policy or a certificate of deposit from the Douglass bank supported not only the rise of the black middle class but also the construction of African-American urban life and culture — much as, for gay New York, did those who dropped a dime at a Horn & Hardart automat or bellied up to the bar at the Stonewall.

Postcard of the Victory Life Insurance Company office in the Overton Hygienic Building; portrait of Anthony Overton at upper right. [Credit: Early Office Museum]

Today shopping presents fresh challenges and opportunities. Who has not begun to assess every transaction for its impact on the fate of the earth? The ways we produce and consume energy, food, goods and the built environment have broad consequences for the future of society and the planet. By highlighting these consequences, advocates of sustainability have moralized consumption to the point where every purchase, from light bulbs and dish soap to the house itself, is now freighted with responsibility for saving or damning the planet. This is as it should be, and new ways of living are emerging from discussions in living rooms and workplaces around the country; a lot of these are then collected in websites and books like Worldchanging, the "user's guide for the 21st century" in shelter, community and politics. [2] But sustainability is burdened with conflicting social and political agendas, and corporations seeking to capture more profit often manipulate the emotional investments that people bring to shopping decisions. But why not reduce your ecological footprint? Choose a smaller house or an apartment in walking and biking distance of work, food markets, bars and cafés. Fix up existing housing rather than moving to an exurban greenfield. Who wants a multicar garage and a home theater anyway?

The impact of any single purchase may be small. Yet, as with votes, individual expenditures aggregate to create large outcomes. Investment banks track spending patterns; once a trend is established, the banks are more likely to underwrite ventures linked to that trend. A feedback cycle ensues as entrepreneurs take advantage of favorable financing. This is how fast food franchises came to rule the earth, or at least the suburbs. But because they rarely play the socially transformative roles automats once played, I don't see why anyone should patronize them. Join a community-supported agricultural cooperative or shop at a greenmarket. You'll help lower the cost of financing these ventures, and have a better meal while you're at it.

Build a House

Houses can be pivots of social transformation. They provide the context for many consumption decisions; they shape the patterns of daily life and intimate relationships. Buckminster Fuller recognized the centrality of the house to social change when, in 1928, he set out to transform how we produce and consume housing, with the goal of improving family life. Inspired by Henry Ford's Model T, which made automobiles affordable through assembly-line production, Fuller designed a lightweight, super-efficient aluminum dwelling intended for mass production in single- and multi-family versions. A standardized hexagonal floor plan would have provided occupants of the Dymaxion House with a suite of well-lit, well-ventilated rooms furnished with modern kitchen, bathroom and media equipment. The structure was designed to hang from a central mast by cables akin to nautical rigging, allowing one or more floors to be stacked up and suspended above the ground. Dymaxion housing was to transform human society by systematically reducing the waste of resources from energy and materials to labor and time.

Unlike the automobiles that inspired them, Fuller's house never went into production. If it had, and had it worked as Fuller planned, the Dymaxion would have liberated families from dependence on electrical and gas networks, water supplies, sewer systems and roads as well as the social and financial systems — above all mortgages — that bond us to what Fuller considered a form of serfdom. Airlifted by dirigible from factory to building site, its mast anchored in a crater excavated by a bomb, his "autonomous dwelling unit" would have been installed wherever its owner found the best opportunities for work and leisure. In Fuller's vision, these mobile dwellings would have created a self-regulating labor market as workers were freed to follow jobs. The state would have dissolved into a self-optimizing industrial economy in which consumers dealt directly with transnational corporations. Rather than maintaining large houses and working to meet mortgage payments, families would have been free to dedicate themselves to creative pursuits and domestic pleasures. [3]

Much as I admire the ambition of Fuller's utopian propositions, I've come to realize that it takes a lot of grit to live even a little bit differently from others. Commissions for individual houses have perennially afforded architects and clients opportunities to experiment with new modes of living. In Women and the Making of the Modern House, Alice T. Friedman examines instances in which architects and female clients produced unusual houses that shifted the rhythms and rules of daily life. My favorite among her case studies is the house in Utrecht, designed by Gerrit Rietveld in 1924 for the widow Truus Schröder, who was seeking a flexible, egalitarian environment for herself and her children. The intersecting floor plates, beams, walls and windows of this modernist landmark are best known as compelling applications of De Stijl principles to architectural design. More importantly, though, the house's multipurpose furniture and sliding wall panels enabled family members to define the degrees of intimacy or withdrawal they wanted. By granting occupants the freedom to reshape the house through moment-by-moment choices about how to live separately and together, the Schröder House demonstrated the capacity of architecture to open up alternative possibilities for everyday home life. [4]

King's Road House, Rudolph M. Schindler, 1921-1922.

The equally innovative King's Road House in West Hollywood, California, also shows how architecture can foster new modes of living. Vienna-born architect R. M. Schindler designed this double house to accommodate himself and his wife Sophia as well as another couple, Clyde and Marian Chace, and two newborns. Four large rooms, built of concrete and redwood, have sliding walls that open onto partially enclosed patios and gardens. A single kitchen, garage and guest suite adjoin these rooms. Envisioned as studios for living and creative work for the four adults in this cooperative household, they provided each person with a discrete space that could be opened to or separated from the others. Narrow glass strips between concrete wall-slabs ensured that even with all the partitions closed, no one was completely sealed off from the household, and the shared kitchen encouraged collaboration in the rituals of daily life. Built in 1921, the house reflected traditional gender roles: the women's studios adjoined the kitchen because, as Schindler noted, "the wives take alternate weekly responsibility for dinner menus." Nonetheless, the King's Road House established an unconventional model of domesticity at a scale somewhere between that of the nuclear family and the community. [6]
Should you ever be fortunate enough to build your own house, keep in mind how domestic architecture orders daily life and try changing the game.

Raise a Barn

Cooperative or communal building, epitomized by barn raising, is yet another way architecture can promote social transformation. In most places barn raising is a lost tradition, but throughout the 18th and 19th centuries it was common for community members to gather voluntarily to help a family build a barn. Cooperative practice has been extended to many forms of construction, especially churches, houses and schools,

and even to the development of larger settlements. Take the example of Drop City. Inspired by Fuller's teachings, a group of artists created a commune in the southern Colorado desert during the Vietnam War as a place where they could drop out of the consumer economy to experiment with low-tech "natural" living. They constructed a village of geodesic dome homes, jerry-built of material like scavenged car hoods, salvaged lumber and recycled insulation. With its crazy-quilt folk aesthetic, quasi-sustainable design, and free lifestyle, Drop City has come to symbolize the dream of living outside the mainstream. Collaborating on a building project can be a step toward re-founding society.

At the other extreme of scale and sensibility is Co-op City, a mega-development of apartment towers in the Bronx that houses some 60,000 residents in 15,000 apartments. Built in the late 1960s, Co-op City is the largest cooperative housing project in the United States, and it exemplifies both the promise and the pitfalls of such big-scale endeavors. The United Housing Foundation, a nonprofit organization affiliated with the Amalgamated Clothing Workers of America, developed the project with funding from the New York State Housing Finance Agency, which lent the UHF millions of dollars through the Mitchell-Lama program. A typical Rockefeller initiative, the program aimed to subsidize housing for middle-class New York City residents who might otherwise move to the suburbs. The product of a rare convergence between labor-union idealism and the mechanisms of the Keynesian state, Co-op City was promoted as an outer-borough Shangri-La of spacious apartments at low cost for its cooperators, mostly Jewish workers who were moving out of dilapidated 19th-century housing throughout the city. But poor planning, incomplete land reclamation, shoddy construction and outright theft by some construction companies jeopardized the project from the start. Enraged by rapid escalation in monthly maintenance fees, the cooperators staged a payment strike. Their stand-off with city and state was resolved only through the infusion of hundreds of millions more in state funding. Today, Co-op City is a functional if not especially vibrant neighborhood of African-American, Latino and white households. It inspires awe for the scale of its ambition and disappointment for the gap between that ambition and eventual realities. Like Empire State Plaza, it memorializes the ambiguous legacy of modernist social, urban and architectural innovation. [7]

Cooperative initiatives of recent years are typically modest in scale and fully or partially self-built. These include the barn raising-like work of Habitat for Humanity, Design Corps and Architecture for Humanity. These nonprofit organizations build houses and community facilities, one at a time, through volunteer labor and sweat equity from beneficiaries. Belief in the value of community also anchors the growing sector of small- and medium-scale ventures often called co-housing. In co-housing, private units are clustered together and share communal facilities. Typically developed by middle-class residents, these intentional communities can evoke the utopian tradition of places like Brook Farm, Fourierist phalansteries, the Oneida Community, Shaker settlements and Drop City. But more often they reflect simply the desire for strong social bonds and a broad family circle — the same desire that animated the Schindlers and Chaces eighty-five years ago.

A thousand-acre ranch in California's Napa Valley, owned and inhabited by seventeen shareholders and their partners, gave me the opportunity to test a co-op project. Initiated in the late 1980s by a wealthy San Franciscan, Green Valley Ranch has been placed in a land trust that limits development to preserve open space for grazing and viniculture. The shareholders have built three communal houses that center on large, shared kitchens, dining rooms and patios, but offer different combinations of private suites and shared facilities. The houses provide members (a mix of full- and part-time residents) a choice among different degrees of interaction and seclusion. To participate in one of their collective dinners — or in their famed New Year's Eve party — is to experience a compelling alternative to conventional modes of domesticity.

Another model of communitarian life is offered by Crossroads Community, a feminist endeavor started in the 1970s by artist Bonnie Ora Sherk. One in a series of art projects that explored the relationship between ecology and social life, Crossroads combined intelligence, ambition and pragmatism. Working with city agencies and arts organizations, Sherk and a team of volunteers transformed a barren seven-acre site adjacent to a San Francisco freeway interchange into The Farm, a community center that functioned as both an alternative art space and a demonstration of urban agriculture. Gardens, livestock pens, classrooms, a theater and a preschool formed what Sherk called "a life-scale environmental and social artwork that brought many people from different disciplines and cultures together with each other and with other species — plants and animals." Now a city park with community gardens, The Farm revealed how a marginal site can become a catalyst in urban development and social life. [8]

Concept drawing, Bonnie Ora Sherk, used beginning in 1974 to gather support for the founding of Crossroads Community, San Francisco. [Credit: Bonnie Ora Sherk]

The barn raisings of nonprofit housing groups, co-housers and similar partnerships usually matter less for their formal qualities than for their social impact. Sherk's Farm reminds us that architecture's transformative capacities are activated through social elaboration. Plan, space, form and materiality: all are just potential until a building is occupied and really used.

Throw a Party

Maybe you don't have the money to build the house of your dreams, or the doggedness to found a commune? Throw a party! Ephemeral events can project possibilities beyond reach in daily reality.

A century ago, progressive reformers used pageants, processions and festivals to portray ideal social orders. Few events were as grandiose as the history pageant staged by the city of St. Louis in 1914 to celebrate the 150th anniversary of its founding. Contingents from the city's ethnic and social groups performed an allegorical masque narrating their diverse histories and envisioning a glorious future unity. Such spectacles intensified civic pride even as they helped to link disparate groups so they could work together to govern the city and plan its future.

One year earlier, the National American Woman Suffrage Association held a pageant in Washington, D.C., that used the colossal Doric colonnade of the Treasury Building as the setting for dance and theater performances representing advances in women's liberation. Appropriating the neoclassical architecture of a government building, the organizers identified their modern cause with the democracy of ancient Greece. That same year, the National Association for the Advancement of Colored People employed a similar strategy in honoring the fiftieth anniversary of the Emancipation Proclamation. With sets that evoked ancient Egyptian architecture, "The Star of Ethiopia" mobilized an alternative tradition to legitimize African-American history, culture and political claims. Another influential pageant of 1913, the Paterson Strike Pageant, used public drama to promote the cause of striking silk workers in New Jersey. Through architecture, art, drama, singing and dance, all these events engaged spectators and participants alike in reimagining history and redefining the social order.

Suffrage pageant, with Hedwig Reicher as "Columbia," at the U.S. Treasury Building, Washington DC, 1913. [Credit: Library of Congress, Prints and Photographs Division]

Maybe this progressive era pageantry is a bit earnest for your taste. What about disco? Discos and other throbbing dance parties create immersive, affective environments that excite the full spectrum of human senses — and most of our body parts. In a lively account of disco culture, Peter Shapiro contended

that gay scenes of the 1970s embraced a Deleuzian mode of political resistance that creates alternative order through the multiplication of desires and pleasures. "The group grope of the disco dance floor, the anonymous antics of the back room, and the heedless hedonism of the bathhouses," Shapiro wrote, "were probably as close to such a polymorphously perverse paradise as humans will ever get." [9]

Ecstasy takes many forms. It is commercialized and commodified in theme parks and vacation resorts. It is ritualized as carnival in São Paulo, New Orleans and Nevada's Black Rock Desert, where the Burning Man Festival convenes an alternative art community every August. And it is institutionalized by art organizations, as is the case with the Summer Warm-Up parties hosted by P.S.1, the contemporary art center in Queens, New York, since 1999. At their best, the P.S.1 parties draw festive crowds that gather energy from innovative installations in the center's courtyard. My favorite so far has been the first, for which the Austrian art collective Gelatin turned the courtyard into a ludic landscape imaginatively constructed from salvaged artifacts and animated by music from a changing roster of DJs. Participants danced in a fog-filled, plastic bubble, climbed a tower built of old office furniture to survey the crowd, and chilled in an igloo-like pavilion created by stacked rings of air conditioners and door-less refrigerators turned to face one another. Aided by architecture, music and alcohol, the crowd turned the grounds into a distinctively sociable pleasure-ground.

Gelatin installation, P.S. 1, New York, Summer Warm-Up, 1999, showing office-furniture tower and fog bubble. [Credit: Courtesy of Gelatin]

The Flux events staged by artists at desolate sites in and around Pittsburgh offer edgier experiences of festival mixed with industrial salvage. At a recent event in the distressed steel town of Braddock, my friends and I wandered through art installations in an empty Carnegie library. Bands played in an old church across the street; adjacent buildings filled with festival-goers drinking beer, watching film art or dancing to mad beats. Projected images animated building facades while fires burned in oil drums in the street. I will forever remember the abandoned center of this depressed town as the vital heart of western Pennsylvania.

By convening a particular alternative public for a communal ritual, such events can remap the city in perception and memory. They create topographies of feeling that resonate long after the music has stopped. So dive in. Party on. You could do more to change the world, but also less.

Credit

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Notes

1. See Chapter 6, George Chauncey, Gay New York: Gender, Urban Culture, and the Making of the Gay Male World, 1890-1940 (New York: Basic Books, 1994).

2. For pointers, see Worldchanging: A User's Guide for the 21st Century, ed. Alex Steffen (New York: Harry N. Abrams, 2008). For a discussion of the affective dimension of our relation to waste in the sustainability era, see Gay Hawkins, The Ethics of Waste (Oxford: Rowman and Littlefield, 2006).

3. Fuller unfolded his semi-brilliant, semi-delusional thinking in books such as 4D Time Lock (Albuquerque: Biotechnic Press, 1972), and Nine Chains to the Moon (Philadelphia: J. B. Lippincott, 1938). See also my own analyses in "Buckminster Fuller's Cybernetic Pastoral: The United States Pavilion at Expo 67," Journal of Architecture, 11:4, September 2006, 463–483; "Necessary Beauty: Fuller's Sumptuary Aesthetic," in New Views on R. Buckminster Fuller, ed. Roberto Trujillo and Hsaio-Yun Chu (Palo Alto: Stanford University Press, 2009, 99–124); or "The Sumptuary Ecology of Buckminster Fuller's Designs," forthcoming in A Keener Perception; Ecocritical Studies in American Art History, ed. Alan Braddock and Christoph Irmscher.

4. See Chapter 2, Alice T. Friedman, Women and the Making of the Modern House: A Social and Architectural History (New York: Harry N. Abrams, 1998).

5. Schindler's statement appears in his essay, "A Cooperative Dwelling," T-Square 2, February 1932, 20-21, reprinted in Kathryn Smith, Schindler House (New York: Harry N. Abrams, 2001, 81–82).

6. Christine Macy and Sarah Bonnemaison discuss Drop City and other Fuller-inspired dome homes in Chapter 6 of Architecture and Nature: Creating the American Landscape (London and New York: Routledge, 2003). See also Felicity D. Scott, Architecture or Techno-Utopia: Politics After Modernism (Cambridge: MIT Press, 2007), especially Chapter 7.

7. On Co-Op City, see Ian Frazier, "Utopia, the Bronx," The New Yorker, June 2006, 54.

8. Sherk describes Crossroads Community on her website. See also Wack! Art and the Feminist Revolution, ed. Cornelia Butler (Los Angeles: Museum of Contemporary Art; Cambridge: MIT Press, 2007), 297–298.

9. Peter Shapiro, Turn the Beat Around: The Secret History of Disco (New York: Faber and Faber, 2005).

A LIVING URBANISN

BY STEVE MOUZON

"Living Urbanism" seems at first glance to be an oxymoron. Urbanism is composed primarily of things that are not alive, like bricks and stone. Other than trees lining the streets, what aspect of urbanism is alive? But if "life" includes things without flesh, bone, fur, or feather that can nonetheless take on a life of their own, independent of that which created them, then the term "Living Urbanism" has meaning. Several things are required in order that something might be considered alive.

Characteristics of Life

Purpose

No form of life is completely self-serving. Rather, each species is useful in some way to some of the other species of its ecosystem.

Form

Every species has a recognizable physical form. There is great variety amongst individual organisms of the species, but only within a very narrow range. This combination of great variety within a narrow range is a characteristic of all life.

Completeness

The entire creature is alive, other than certain protective structures such as nails and shells.

Code

Each creature carries a genetic code that describes the design of the species.

Growth

Through a process of cell sub-division, creatures grow by making more cells. At each stage of growth, the specimen is whole and complete.

Replication

Every form of life has the ability to replicate without the involvement of any ancestral specimens that are replicating. Ancestors may die and be forgotten, but still, the current specimens can replicate, spreading the genetic material of the species.

Disease

Disease can come, in general, from two sources: It can originate from outside the creature: in this case, a foreign life form which works against the purpose of the organism enters the organism and reproduces. Or it can originate from within: in this case, the cells within begin to work against the purpose of the organism. Often, they reproduce wildly as cancerous growths, spreading across the organism, eventually killing it.

Death

Death occurs at three levels: Cells of a creature live for a short period of time and then die, giving place to new cells during the life of the creature. The death of the cells is a natural and healthy part of the life of the creature because it allows the creature to renew itself, lengthening its life. Individual specimens within a species live for an intermediate period of time and then die, giving place to their descendants. The death of individual specimens is a natural and healthy part of the life of the species because it allows the species to strengthen itself. Species exist for a long period of time, but eventually go extinct. The extinction of species can also be a natural and healthy process when it is due to naturally-occurring reasons, because the extinction of one species might make room in an ecosystem for the ascent of a more advanced species.

Characteristics of a Living Urbanism

Urbanism is analogous to life in many ways. That is to say, a city is not a living creature; a city is like a living creature in useful ways. Types of settlements are similar to distinct species. A farming hamlet, for example, is far different from a metropolitan borough on many counts. They have far different habitats, food sources, life cycles, metabolic rates, waste materials, and appearances. So if types of settlements are like distinct species, then a particular city, town, village, or hamlet is like a single creature, and individual buildings within the city, town, village, or hamlet is like individual cells within the creature.

The idea that settlement types are like species was first proposed by Christina Miller; many characteristics of her model are incorporated here. A living urbanism exhibits all of the characteristics of biological life listed below:

Purpose

Each type of settlement has its purpose. The purpose is often communicated explicitly: Farming Hamlet, Fishing Village, Market Town, etc.

Each individual settlement must also have a purpose if it is to be considered living urbanism. That purpose must include all of the functions of daily life if the settlement is to be considered a living thing. If people can't live in a settlement without leaving for the necessities of life, it's not a living place. Suburbia is comprised primarily of warehouses for sleeping humans and cannot be considered a living thing because you can't live there; you can only sleep (and do a few other related activities) there. A liver or a spleen cannot live on its own, nor can suburbia.

Individual buildings also have their purposes, and therefore their types. But just as most cells in a body have multiple functions, the best buildings are those which have many possible uses. There are very few cells in a healthy body that have only a single function. An entire body composed of single-purpose cells could not remain alive for very long, if it could live at all. And a city composed only of single-purpose buildings is not living urbanism, nor is it sustainable.

Form

Every type of settlement has a particular form. A River Port City, for example, snakes along both sides of a river, with one side built more intensely than the other. A Market Town has its heart at an intersection where two or more roads meet. The form of each settlement type begins with the thing that feeds it (the river, the ocean, the roads, the mines, etc.) But settlements are species that can undergo metamorphosis. Hamlets and villages usually have a single initial purpose, as do towns. But as they metamorphosize into cities and metropolises, they take on more and more purposes until they no longer reflect their primary purpose. For example, New York began as a Port Town, but that purpose is now only one of many, and so its form is now more complex than before the city's most recent metamorphosis.

Completeness

A living urbanism is produced by a culture at large, not just by a few specialists. If the citizens are not participating in the building of their town to a significant degree, then the settlement that is being created is not alive. Urbanism may be created either through a living process or through a mechanical process. The mechanical process for creating urbanism focuses on the specialties of the specialists that make the system. The New Urbanism admires and aspires to the old places, of living urbanism, but nearly all New Urbanist developments are still built by a mechanism comprised primarily of specialists. We cannot yet claim, therefore, that New Urbanism contains the pervasiveness of life found in a truly living urbanism.

Code

Each type of settlement, each type of Transect zone, and each type of building in a living urbanism springs from a genetic code that contains the essential character of the settlement type, Transect zone, or building. But today, our codes are not helping to create living urbanism because they are based on the mechanical model rather than the model of life. For evidence, consider this: today, there are only a handful of planners alive that can plan a medieval (organic) town to a competent level. Yet in the medieval era, the townspeople built their towns.

Often, these townspeople were illiterate, and they certainly did not draw. So how were they able to build places so great that even the best planners alive today cannot exceed them and seldom even match them? How were they able to transmit the wisdom to the next generation? This transmission device remained a mystery for many years. Some assumed that is was some sort of mystical force that post-industrial people could not understand. Now, however, some believe that the transmission device has been rediscovered and that it is something very simple, based on the purpose of each pattern: "We do this because…"

Because there is a purpose and a form for each type, and because the culture at large must be part of the process of creating a living urbanism, the code must be simple so that it is easily communicated and easily understood. Each pattern in the code of a settlement type, Transect zone type, or building type should be framed as "We do this because…" "We" signifies that this is a place "we" are building, not a place "they" are building. "Do" signifies that the code is not just theoretical, but that it requires action. "This" signifies the particularity; the code is not just some vague collection of good intentions. "Because"

signifies that each pattern has a purpose. If every pattern of every code is framed in this manner, with the plain-spoken rule of thumb of the pattern connected to the reason for the pattern with "We do this because…" then this activates everyone in the culture, and everyone is allowed to think again. Until very recently, this aspect has been missing from nearly all codes, or has been only tenuously attached by a separate commentary document.

Growth

A living urbanism grows through a natural process that approximates cell division. Low-Transect-Zone lots are subdivided to make Higher-Transect-Zone lots. This method of growth drove human settlements until about a century ago, having entirely disappeared in new developments. One of the many benefits of the former method is that a settlement is complete at all times, just as an organism is complete at all stages of growth. You don't see children walking around with one arm until a certain age, nor are they missing fingers or toes as infants. Living urbanism begins with a community of farmsteads. Each farmstead is complete, as is the sub-urban neighborhood block that it is divided into, as are the general urban lots that are further subdivided from the sub-urban lots, as are the Main Street lots that those are further subdivided and densified. This is a quick description of the Sky Method, which has only recently been proposed to approximate the old methods of growth of a living urbanism. This may sound like an entirely foreign concept to anyone steeped in modern development methods, but look back at a series of maps about a century apart showing the growth of an old city. You will see that this was the normal method of growth of living urbanism. So it is our recent system of development that is the foreign interloper instead.

The way we build today attempts to jump straight to final completion of a town by anticipating its climax condition, including that work of new urbanist firms. Until an entire town is complete, it looks like a stage-set. The corollary of a development in its early stages would be a creature missing most of its limbs, muscles, and organs. The only thing it would have in full supply is its bones, because the municipalities insist that the entire infrastructure for a phase be complete before lots can be sold. A skeleton with only a few pieces of tissue attached obviously could not be alive. Nor would you make it alive by continuing to add tissue here and there.

Lest there be any doubt about this poor creature's inability to live, we have devised the Homeowner's Association, which is Urbanism's Chloroform. Because we are terrified of uncertainty, we want to make sure that the climax condition the planners tried to create at the beginning is perpetuated forever, so we immerse the entire place in Urbanism's Chloroform, ensuring that it never has any chance of taking on life by unknown means in the future. By making change impractical, we make growth impossible. With no chance of growth, there can be no life. So the best that the New Urbanism can do under these conditions is to create portraits of living places, but these portraits are no more alive than any canvas on the wall.

Replication

Our system of higher education is the best structure that exists today for spreading wisdom. This structure requires students to spend years in classes, working through countless problems, showing their work and eventually earning a degree. But it is a terribly inefficient structure, as can easily be determined by looking at the proportion of PhDs in a particular population to the total population.

Nature has a better way. Consider humans: each one contains the most complicated code ever contemplated, the human genome. Yet this incredibly complicated genetic material is replicated hundreds of thousands of times every single day, and almost always by humans with no formal training and nothing more than experience learned through observation. Human replication begins when two humans consider each other to be attractive. If the attraction is strong enough, they mate, they breed (not necessarily in that order,) and the genetic material is passed on.

Living urbanism was once built by a very similar process that has now been lost: the Living Tradition. Every tradition begins as a great idea by a single person about how to build something better. If the pattern efficiently achieves its purpose and resonates with their neighbors, it is replicated, and therefore becomes a local pattern. Later, when the local pattern has existed long enough that other people in the region have seen it, they may say "We love this pattern; we want to adopt it into our family of regional traditions." Most architects today equate tradition to history, but a living tradition bears about as much resemblance to an historical tradition as a living creature does to a fossil; they may both have a similar shape, but one is alive while the other is dead.

So living traditions work because people resonate with, or find beauty in, a particular pattern. Just as nature's system works because one person resonates with, or finds beauty in, another. But just as people breeding have no need of any detailed knowledge of genetics, people who are replicating a beloved detail have no need of the detailed calculations of the person who first designed the detail. A living tradition embeds wisdom in beauty, just as nature does. So the people only need to know the general "we do this because…", not the specific details the originator had to work out.

Disease & Death

Disease occurs in a living urbanism just as it does in living creatures. Patterns designed by specialists rather than generalists should be considered highly suspect as potential disease agents. Thoroughfares designed by traffic engineers are a classic example of a specialist's solution with a single purpose: getting as many cars as quickly as possible from point A to point B. But in doing so, they make no contribution to the overall health of the urbanism. So almost everywhere such patterns are inflicted by the specialists — beginning in the teens, 1920s, and 1930s — they cause disease in the living urbanism.

The rapid, cancerous growth of the very fabric of urbanism is sprawl. Bloated, super-sized cells replicate rapidly, sucking up the resources of the living urbanism until the life of the place is sucked out and the living urbanism dies.

Today, our world is in crisis. We have a pandemic of global proportions of not just one disease agent, but of every sort of specialist-driven virus imaginable. And cities all over the world are eaten up with the cancer of sprawl, so much so that few places remain with any signs of true living urbanism. Many places are preserved in Urbanism's Cryogenic State: the Historic District. They may appear alive under casual inspection, but will they ever actually live again? And all around them, we can usually find nothing except the sickening, bloated carcass of what might once have started out as living urbanism, but now is just cancerous sprawl. And so the living urbanism died in hideous fashion, and we watched it happen. And as the urbanism died, sustainability died with it.

What can be done? If we are to have any hope of living sustainably again, we must realize that sustainability goes hand-in-hand with a living urbanism. As a matter of fact, so long as it is understood that buildings are as much a part of urbanism as cells are of a body, it's not too great a stretch to say that sustainability is a living urbanism. The two are inextricably linked; you cannot have sustainability without a living urbanism.

And so, we must revive living traditions, because they are the operating systems of living urbanism. Today, millions of people are working furiously all around the world to try to figure out how to live sustainably. Once we figure it out, (and I'm optimistic that we will,) we simply do not have the luxury of time to spread that wisdom using only the higher education system because it is far too inefficient and slow.

But there is an even worse way to fail. Modernism has at its core the precept that if you are to be significant, your work must be unique. So each significant architect is expected to reconstitute architecture into a personal style like nothing quite seen before. The problem is obvious: millions of the best minds are working today to figure out sustainability. Once it is figured out, if we then require each architect who would be significant to re-invent sustainability in their own personal style, then we can expect nothing other than catastrophic failure. So the requirement of uniqueness goes far beyond the ludicrous to the globally treasonous. It must not be tolerated any longer. We must be allowed to share wisdom! The most effective way of sharing wisdom ever devised and proven is nature's way: it is a living tradition. And it is the operating system of a living urbanism. We must re-awaken them now!